FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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Another Record Feed Grain Supply Seen for 1959-60

WASHINGTON — Another record feed grain supply is in prospect for 1959-60, states the September feed situation report of the U.S. Department of Agriculture. This production reflects another generally favorable growing season and a 5% increase over 1958 in total acreage expected to be harvested.

In brief, here's what USDA sees in the current situation and outlook for feed grains and concentrates in the way of supply and usage:

● The 166-million-ton crop of feed grains indicated Sept. 1 would be 5% above last year's record and more than a fourth above the 1953-57 average. The carryover of feed grains into 1959-60 is expected to be up around 15% over the 59 million tons in 1958-59 even though total disappearance has been at a record level. Domestic use in 1958-59 is estimated to be about 11% over 1957-58 and exports about a fourth higher.

● The total 1959-60 supply of feed concentrates, including feed grains, by-product feeds and wheat and rye to be fed livestock is estimated at 263 million tons, 7% over 1958-59. Although domestic use and exports are expected to continue heavy in 1959-60,

(Turn to FEED GRAIN, page 8)

Pullet Breeder Adjusts Production to Orders

HAZARDVILLE, CONN.—An announcement that Pilch's Poultry Breeding Farms, Inc., Hazardville, Conn., and Talladega, Ala., has adjusted its production to orders was made recently by Chester Pilch, president.

"All orders for Pilch's breeder pullets will be filled strictly on date of booking and confirmation dates," Mr. Pilch said.

"While we may not be able to make prompt delivery on some orders in the immediate future, we believe this policy will do most to help bring order out of our temporarily unsettled poultry industry."

The Pilch organization does not raise started pullets for sale.

Discussions of Pelleting and Crumbling Attract Over 800 to Production School

By ROGER BERGLUND
Feedstuffs Managing Editor

KANSAS CITY — More than 800 feed men this week turned their attention to many of the problems, and opportunities, in the production of what is probably about 60% of the nation's formula feed output—pellets and crumbles.

The occasion was the 1959 Feed Production School and Small Mill Short Course, held Sept. 23-26 at the Continental Hotel in Kansas City.

The theme of the main production school was pelleting, and some of the 35 authorities on the three-day program came up with some significant new research findings on the production and handling of pelleted rations, as well as suggestions on methods, procedures and equipment in pelleting.

Evidence of the widespread interest in the many problems and new opportunities which pelleting presents is found in the fact that the school this year attracted feed men from 44 states, six foreign countries and six provinces in Canada.

Many of the meeting rooms were filled to capacity and more as production men sought answers to their questions on subjects which highlighted the fact that this business of pelleting presents some real problems in production and distribution of feed, but also holds continuing promise of opening still wider avenues of service to agriculture. In addition to pelleting, the school program devoted attention to such things as bulk versus bag feed handling, liquids handling, premixing, quality control, and grinding and mixing roughages.

Pelleting Research

In the field of pelleting, the reports on research projects, sponsored by both Feed Production School, Inc., and companies in the industry, attracted a great deal of attention. These are projects which the feed men feel offer significant contributions in the way of reducing pelleting costs, increasing feed effectiveness and improving the efficiency of pellet production and handling. For example, one of the projects turned up new ways of substantially extending pellet mill die life, and thereby reducing pelleting costs. Other projects provided information on developments and methods which can lead to gains in nutritional value, as well as to tougher pellets han-

(Turn to PELLETING, page 105)

At Iowa Conference

Broad Range of Industry Interests Gets Attention

By GEORGE L. GATES
Editor of Feedstuffs

AMES, IOWA—A program beamed especially at feed salesmen and dealers at the Iowa College-Feed Industry Conference emphasized the broader range of knowledge the men on the industry "firing line" must carry in their ammunition belts these days.

Marketing problems of egg producers, relationships of disease and nutrition, changes in swine production practices, attitudes of feeders toward the feed industry, roughage pelleting and the general economic outlook for swine and cattle were reviewed by Iowa State University and guest specialists.

The conference, held Sept. 18, followed a session the preceding afternoon which was aimed at executives and others interested in feed advertising. A review of this session appears on page 6. Both gatherings were jointly sponsored by the university, Western Grain & Feed Assn., Midwest Feed Manufacturers Assn. and the Feed Institute, Inc.

More than 550 attended the salesman-dealer session. Here are summaries of the talks (another appears on page 6):

PRODUCING AND MARKETING

QUALITY PORK: The feed industry's "customers of the future" were described by Dr. Damon Catron, Iowa State swine nutrition researcher, as follows: The scientific breeders, producers of baby pigs and feeder pig buyers. The latter are those who will have their own corn supplies, and baby pig producers also will grow hogs out to market if they have corn. All of them will be better educated and operate on a larger scale than at present, he said.

Dr. Catron indicated that shifting of production to "new" areas is not as rapid as sometimes is thought and

(Turn to IOWA, page 109)

FEEDSTUFFS *Features This Week*

CONTRACT FEEDING: An article on **page 14** describes a feed store working on a 50-50 basis with egg producers.

MILL IMPROVEMENT: A description of a mill improvement program by a cooperative starts on **page 18.**

NUTRITION: The effects of high calcium in the animal diet are reported in an article starting on **page 30.**

PROTEIN SOURCES: An article starting on **page 42** outlines current and likely future developments in the use of protein sources in feeds.

RESEARCH: A soybean processing progress report involving feeding soybeans and soybean oil to broilers starts on **page 86.**

FOOD ADDITIVES: A Food and Drug Administration official explains the provisions of the food additives amendment as it applies to feeds in an article starting on **page 90.**

— REGULAR FEATURES —

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Stocker, Feeder Shipments Up

WASHINGTON—Stocker and feeder cattle and calves shipped into nine selected north central states during August totaled 444,460 head compared with 364,035 head during the same month a year earlier—an increase of 22%, the U.S. Department of Agriculture reported this week. Sheep and lambs shipped into these nine states amounted to 430,775 head compared with 356,207 head during August, 1958—an increase of 21%.

(Table on page 8.)

The states include Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, South Dakota and Nebraska.

Of the total cattle and calves, 203,289 head came through public stockyards and 241,171 head were received direct. The July-August cumulative cattle and calves total was 773,699 head compared with 612,949 head during July and August last year. This is an increase of 26%.

Of the sheep and lambs shipped during August, 117,394 moved through public stockyards, and 313,381 head were received direct. The July-August cumulative total of sheep and lambs was 650,000 head compared with 621,678 a year earlier—an increase of 5%.

USDA said total inspected shipments of stocker and feeder cattle and calves from public stockyards during August amounted to 438,482 head, an increase of 4% over the 421,703 head shipped in August, 1958.

Inspected shipments of stocker and feeder sheep and lambs from public stockyards showed a decrease of 9%, comparing the August, 1959, total of 263,516 head with the 289,703 figure of a year earlier.

Purina Opens Two New Feed Mills

OTTUMWA, IOWA—A crowd estimated at 10,000 attended the Ralston Purina Co. mill opening here Sept. 19. (Pictures, page 7.)

Visitors toured the mill, lunched on barbecued chicken, watched television stars perform, listened to a brief greeting from Raymond E. Rowland, president of Purina, and a welcoming talk by Rep. Merwin Coad (D., Iowa).

An array of live animals was on display on the grounds, ranging from rabbits to beef cattle.

The opening here followed by one week a similar event at Fond du Lac, Wis. Attendance there was estimated at approximately 10,000, too. At Fond du Lac, Gov. Gaylord Nelson of Wisconsin and Donald Danforth, Sr., addressed the crowd.

The plants are the company's 53rd and 54th mills, and both will manu-

(Turn to PURINA, page 105)

FEEDSTUFFS

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Top of the Hopper

GOOD EVIDENCE THAT THE FEED industry is getting out of its short pants, service-wise and ethics-wise, may be found in reports of two recent self-evaluation sessions in which industry members participated. The industry, which has set all sorts of records of achievement in science and production, appears now to be looking for more and better ways to improve its relationships with customers.

At the University of Minnesota, a wide-open panel discussion delved into what feeders, extension men, researchers and veterinarians think of the industry and brought out some criticism and praise, and there is little doubt that good will come of the frank exchange of views. (See story on page 10.)

Old-timers in the business can well remember when mutual respect between colleges and the industry was a long ways from the situation that exists today. Cooperation is the keynote, and indications are that relationships will continue to improve.

Perhaps fairly typical of the attitudes of many university research personnel is that of Dr. H. J. Sloan, director of the University of Minnesota Agricultural Experiment Station. Researchers, he said, are now realizing that it is important for their own good to make known their findings and work to establish a reputation. Feed men, he continued, are an important link in the chain which passes information from the university to the producer. "We can contact more producers through you than on our own. A real effort needs to be put forth in training the people who make the contacts with the producer."

Significant, too, was Dr. Sloan's comment that research people believe in reporting on projects as they develop rather than wait for final conclusions. The reason: Those who put this information to use are more knowledgeable today and realize the difference.

Meanwhile, at Iowa State University, feed men participated in some soul-searching in a specific area of customer relations—advertising and promotion. The feed manufacturing industry, participants admitted, has been guilty of some improper approaches in the past. These, as one panelist said, could be attributed to the fact that feed companies in the past paid less attention to advertising programs than to other phases of the business. The situation has changed, however, and little criticism of present advertising approaches was voiced at the session.

Comparison of today's feed advertising approaches with the type of material used to push the products of many other industries is one way of illustrating how far feed advertising men have progressed, as almost any hour in front of a television screen will prove.

However, no one is saying that feed advertising is perfect, nor does anyone concede that customer relations could never be better. So long as the industry is willing to look at itself honestly, as it has at the Minnesota and Iowa sessions, it will continue to look better in its customers' eyes.

A WELL-KNOWN MARKET statistical service comments this week that today's cattle market "is one of the most remarkable of the century." In spite of very large receipts, the fat cattle market has maintained a slight seasonal advance. Reports that buyers are backing away from the feeder cattle market, this source says, are contradicted by the fact that the price of feeders at Omaha has strengthened. Meanwhile, movement of feeders to Midwestern lots during August was reported this week to be over 20% greater than a year earlier.

An indication of what might be ahead in the longer-range picture is

(Turn to TOP OF THE HOPPER, page 105)

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

It seems that now's the time when a little improvement means more than it ordinarily would in periods of greater activity. Some manufacturers were encouraged this week by slight gains in calls for their products, but any real pick-up isn't expected for another week or so. While some regions report that this week's business was better than a week earlier, others tell another story. Some mill representatives reported that business this week was no better and in some cases a bit off compared with last week. This week's wholesale feedstuff price index was 74, slightly under the previous week's 74.3 but far below the 82.7 index of the comparable week last year. The feed-grain index, reflecting a sharp drop in corn prices, was 63.3 this week—2.2 points below a week earlier and 2.3 points below a year earlier. The hog-corn ratio climbed to 11.7 from 11.2 last week. A year ago the ratio was 16.5. (Ingredient prices in detail on pages 106-108.)

Northwest

This week was no different than last for most feed manufacturers in the Northwest. The demand improvement expected didn't come, but feed prices are going up $1 ton or so anyway because of swings taken upward by soybean oil meal, millfeed, linseed meal and alfalfa meal.

With feed prices on their way up again, feed demand is expected to strengthen some next week as dealers and feeders see the change and begin replenishing inventories before further increases are tacked on.

Reports from mill representatives Sept. 24 indicated that the week's business didn't do a thing toward making September a better month volume-wise. In fact, one representative said his mill's business wasn't even up to last week's level. And another said his plant, enjoying better business than last year in all other months, will be "lucky to equal" last year's September volume this month.

It looked possible that a mill or two would not be able to fill out the week in production, and others were running without any overtime at all.

Dairy, hog and turkey feeds continued to move the best. Some optimism came from the turkey hatchery report which showed that Minnesota hatcheries produced 921,000 turkey poults in August—42% more than in August of last year. And there were reports of beef fattening feed business starting to trickle in.

Southwest

Formula feed business in the Southwest continues at about the same pace as last week. The volume of this period does not yet come up to that in the winter months of this year, but it is better than it has been for several months and as recently as two weeks ago. Overall demand is broader. Mills are running five days generally, with a few running six, backlogs are being kept small in anticipation of even better volume.

Cattle feed is becoming increasingly important in the demand picture. Bookings have been extensive—well above a year ago—and instructions are starting to come in from the northern regions of the area. Dairy feeds are picking up. Milk prices are good and pastures are tending to dry up. Rains this week over the area may slow up deterioration.

Turkey feed volume is large, probably near its peak. Egg feed movement has improved noticeably for several mills. Broiler feed demand is steady.

Hog rations are not the factor in the demand picture they were earlier, even though volume is still pretty good. Starters are beginning to move.

Price lists are expected to be unchanged to up $1.50. Millfeed and soybean oil meal are stronger, along with some other ingredients.

Northeast

There was a little improvement in formula feed sales this week but not enough to influence mill running time. Sales activity next week is expected to remain at or about the same level.

One trade spokesman said, "We can't seem to get sales in volume just now. The lack of demand persists despite the fact that egg prices have advanced, broilers are holding up pretty well, milk is bringing a good return and there is not too much afterfeed in the fields."

The spokesman added that the comparatively poor sales showing may result from the economic effects of the steel strike, which incidentally, is causing layoffs in other industries in this region.

There was just about as much dairy feed volume last week as there was in egg mashes and growing feeds. Turkey feeds are slipping and broiler feeds slumped quite a bit.

Central States

During the week ending Sept. 23, there was a very modest betterment in formula feed in the Chicago area, although the improvement, if it had developed at any time other than following a month of comparative quiet, would hardly been worthy of mention.

Constituent feed market action may have had a little something to do with the slightly improved interest in the mixed feed category. The hog market has been slipping rather consistently of late. After maintaining a $15 top at Chicago for a long time, it has been down close to the $14 mark, which in itself is not too conducive to heavier call for hog feeds.

From the standpoint of laying flocks, mixers are pointing to the fact that although egg prices have bounced back from their lows of a few months ago, they still are well below the year ago mark, which naturally is a drag on demand for that type of poultry feed.

Cattle feed is moving in a fair way. Pastures will soon go into their seasonal fall decline and some further betterment in demand may make itself felt before too long. In the meantime, cash corn, very plentiful as result of the 600 million bu. increase over last year's all-time high record crop, has gone over from an old to a new crop price basis. And everyone expects to find tremendous quantities taking refuge in the government support program, although, in the opinion of close students of the situation, there still is going to be plenty of open market corn to compete with other types of feed.

South Central

There is a little more activity in formula feed trading this week, ac-

(Turn to MARKETS, page 111)

PETER HAND AQUA SOLVA®

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PETER HAND FOUNDATION

1000 North Avenue, Chicago 22, Illinois

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Water dispersible vitamins and antibiotics for poultry and swine

• **Proved effective!** Poultry and swine are often slow to recover from disease because *feed* intake is reduced. But *water* intake is not. Aqua Solva, added to drinking water, helps maintain nutritional level, improve appetite, restore normal health. For this same reason, Aqua Solva is also recommended for periods of *stress*.

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Send for FREE booklet. See how Aqua Solva gives that *extra* boost to poultry and swine...and assures steady turnover and sure profits. Mail coupon below.

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Please send me your free folder on Peter Hand Aqua Solva for poultry and swine.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

Serpasil for Poultry Placed on Market

SUMMIT, N.J.—A new tranquilizing additive for poultry feeds, specifically intended to reduce the effects of stress on laying and growing chickens, is now available commercially, according to an announcement this week by CIBA Pharmaceutical Products, Inc.

The tranquilizer, Serpasil, is packaged in 50-lb. multiwall paper bags as a .2 and a .8% premix.

CIBA officials said feed manufacturers will be required to submit new drug applications for finished medicated feeds containing Serpasil premix.

Reserpine, an alkaloid extracted from roots of the Rauwolfia plant, is the tranquilizing ingredient in the new product, which CIBA said "is the first feed additive of its kind on the market," and is the first of a series of feed additives now being developed by CIBA in its research laboratories. Studies are being made of additives for cattle, lambs and swine, in addition to poultry. Reserpine was first isolated and identified by CIBA, and a U.S. patent was granted the company on the product in 1956.

"In general, it is expected that the use of Serpasil in poultry feeds will result in better feed performance, reduced feed waste, better tolerance of hot weather as evidenced by reduced mortality, and reduction of stress response to such conditions as crowding, disease and vaccination," said CIBA officials.

Field studies of commercially grown broilers have shown that Serpasil increases efficiency of feed conversion by 2-4%, CIBA reported. It was reported also that in another study in which hens were observed over the summer months, egg production increased 3-4%, and egg quality, particularly shell thickness, was improved in Serpasil-treated fowl.

Recommended levels for Serpasil premix in chicken feeds are two parts per million for laying mashes and one part per million for starter and growing mashes.

CIBA said chickens raised on these recommended levels were found to be "entirely free of reserpine at the time of processing," and that eggs produced by Serpasil-fed layers showed no reserpine carryover.

Grain Executive Killed In Airplane Crash

SHANNON, MISS.—T. H. McDaniel, 34, owner of the Shannon Grain Co., the McDaniel Grain Elevator and McDaniel Trucking Line, was killed in a plane crash recently near State Line, Miss., during a rain storm.

Mr. McDaniel and two executives of the Siesta Furniture Manufacturing Co. were enroute to Tupelo from Mobile, Ala., in a twin-engined Piper Apache owned by the Siesta company, when the accident occurred. Witnesses who say the plane plunge into a wooded section about five miles south of State Line said they were certain both engines were dead.

The wreckage was located an hour later. The plane was demolished but did not burn. The three bodies were still in the plane, and it is assumed the men were killed instantly.

Columbus Feed Club Plans Meeting Oct. 5

COLUMBUS, OHIO—The "fall opener" meeting of the Columbus Feed Club has been scheduled for Oct. 5. Films of Ohio State University football games in 1958 will be shown.

The dinner will begin at 7:30 p.m. in the Terrace Room of the Southern Hotel. The officer nomination report will be given at the meeting. The nominating committee is Frank Varga, Dale Sprosty and Lloyd Nicol.

Prepared Livestock and Poultry Feeds and Other Milled Feed Products Sold in Specified States, 1954-58*

State	Calendar year (or fiscal year ending) 1954	1955	1956	1957	1958
	1,000 tons				
Rhode Island	68	65	66	66	67
New Jersey	917	887	915	795	896
Pennsylvania	**	**	2,477	2,488	2,488
Indiana	1,318	924	1,185	1,212	**
Wisconsin	985	960	1,049	1,051	1,137
Minnesota	1,005	1,006	996	1,098	1,250
Iowa	2,094	2,456	2,664	2,949	3,723
Missouri	†1,435	†1,389	2,194	2,199	2,360
North Dakota	52	65	60	62	80
South Dakota	152	166	173	188	242
Nebraska‡	605	638	686	730	666
Delaware	419	372	414	432	468
Virginia‡	793	774	766	785	967
West Virginia	386	362	399	371	371
North Carolina	1,106	1,134	1,221	1,301	1,596
South Carolina‡	356	**	**	**	379
Georgia	1,250	1,457	1,585	1,903	2,052
Florida‡	779	1,014	994	1,042	1,194
Kentucky	566	542	592	573	616
Alabama‡	728	772	806	880	1,111
Mississippi	587	543	552	599	662
Arkansas‡	898	921	918	1,018	1,112
Louisiana‡	578	530	537	576	613
Oklahoma‡	876	1,071	932	1,056	878
Texas‡	3,238	4,080	4,053	4,410	3,935
Colorado‡	270	229	285	352	323
New Mexico‡	171	201	185	298	211
Arizona	**	**	**	220	278
California‡	4,400	4,344	4,657	4,577	4,600
Total for 29 states¶	29,352	30,484	31,921	33,603	35,500

*Data for most states reported by the state department of agriculture on feed sold in the state, either retail or by feed manufacturers. Data for a few states are for shipments or distribution.

**Data not reported or not available on a comparable basis. Total for 29 states includes an allowance for sales in these years for these states based on sales in other years.

†Does not include feeds exempt from payment of tonnage fee. An allowance for this exempt tonnage is added to Missouri sales for 1954 and 1955 for use in deriving the total for the 29 states to make these two years comparable with 1956-58.

‡July-June fiscal year, except Alabama (October-September) and Louisiana and Texas (September-August). All other states calendar year.

¶Total includes an allowance for state data not reported in one or more years, and for exempt tonnage in Missouri in 1954 and 1955 to make the totals comparable for the five years.

USDA Compiles Formula Feed Data on 29 Reporting States

WASHINGTON — Thirty five and a half million tons of commercial feeds, including ingredients, were sold during 1958 in 29 states reporting such data, the U.S. Department of Agriculture showed this week in its September Feed Situation report. This total is 6% more than for the same states in 1957 and 21% above their 1954 volume.

USDA noted that in arriving at the totals in the accompanying table of information on sales or distribution of commercial feeds in the 29 states for 1954-58, adjustments were made to include an allowance for quantities sold in states which did not report sales in every year. Estimates of sales were included for these states based on sales in the years reported, adjusted for trend or changes in sales in other states in the area.

A number of important livestock and poultry states do not compile information on commercial sales of feeds, but, as pointed out by USDA, the importance of the 29 reporting states in the national picture is indicated by the fact that these states contained 73% of the total grain-consuming animal units fed in the 1957-58 feeding year.

Most of the data in the table were compiled from reports published by state departments of agriculture, and most of the states not listed in the table do not collect data or make estimates of feed sales or consumption in the state. USDA also noted that for nearly all states, the data apply to sales of feed in the state whether the feed is produced in or out of the state. Feed shipped to a neighboring state for sale would be accounted for in the state where it is sold.

Data from most of the states represents sales of ingredients as well as sales of mixed livestock and poultry feeds. USDA said there is probably some duplication in the total tonnages as some of the ingredients sold would subsequently go into commercially prepared feeds. In many states, however, the reported tonnages are based on quantities for which sales tags have been purchased or tonnage fees have been paid. Since this fee is generally levied only on feeds sold for consumption, this would tend to limit the quantities of ingredients reported as sold that would later go into commercially prepared formula feeds.

It was noted also by USDA that most of the states' figures apply to sales of feed in the state as reported by manufacturers, though a few states reported retail sales.

New York Association Reelects 3 Directors

JAMESTOWN, N.Y.—Three directors whose terms expired were reelected to serve three-year terms at the annual meeting of the Mutual Millers & Feed Dealers Assn. held here Sept. 16. The men reelected include Merrill Gates, East Randolph, N.Y.; Ralph Mosher, South Dayton, N.Y., and George Edmunds, Sherman, N.Y.

New officers elected following the selection of board members are Mr. Gates, president; Mr. Mosher, vice president, and Mrs. Donald E. Mattison, secretary-treasurer.

The new secretary-treasurer is the wife of Donald E. Mattison, Cattaraugus, N.Y., a member of the board of directors, and she succeeds Mrs. Gustavus A. Bentley, Chautauqua, N.Y., who had held that office for the past several years following the death of her husband, who had been secretary-treasurer.

OPPOSITE DIRECTIONS IN OIL MEAL PRODUCTION

WASHINGTON — Production of soybean meal was 6% lower in August than in July, but cottonseed meal output was up a sharp 55%. A government report said this week that soybean cake and meal output for August was 697,700 tons, compared with 745,700 tons for July. Cottonseed cake and meal production bounced up to 70,100 tons during August from 45,500 tons in July.

J. V. Mayhall

H. R. Wortham

ADM Announces Two Appointmnts At Mexico City

MINNEAPOLIS—Harry R. Wortham, an assistant vice president of Archer-Daniels-Midland Co., has been named general manager of ADM'S affiliated formula feed operations in Mexico, according to E. A. Olson, executive vice president of the company's agricultural group.

Mr. Wortham will supervise the production and marketing of feeds manufactured by Industrial Pecuaria, S.A., and associated companies in Mexico City and Torreon, Mexico.

James V. Mayhall, newly-named general sales manager of Industrial Pecuaria, will join Mr. Wortham in Mexico City. Mr. Mayhall formerly was general manager of the feed division of the McCabe Co., Minneapolis, and more recently was associated with Farmers Union Grain Terminal Assn., St. Paul.

Irregular Finish for Memphis Oilseed Meal

MEMPHIS, TENN.—Oilseed meal futures finished irregular on the Memphis Board of Trade during the past week, compared with a week earlier.

Early in the period, weakness in soybeans and a slow cash oil meal market, except for exports in cottonseed oil meal, influenced the Memphis futures boards to drift downward. Tight money also was said to be a factor in the week's dealings.

Sept. 22 the futures market picked up some of its lost ground as a threat of rain appeared possibly impeding the soybean harvest. This boosted soybeans and the oil meal went to the upside along with the beans. However, demand for the cash article continued to be light and mixed feed business showed no significant improvement.

Spreading transactions continued to lend support to cottonseed oil meal futures, but trade interests were mostly on the selling side.

Unrestricted soybean oil meal closed Sept. 22 60¢ lower to 75¢ ton higher than Sept. 15. Memphis basis soybean oil meal was 25¢ lower to 25¢ higher and bulk solvent cottonseed oil meal was 25@75¢ lower.

Trading for the period amounted to 1,200 tons of unrestricted soybean oil meal and 2,300 tons of bulk solvent cottonseed oil meal.

Dr. Tumlin Joins Feed Research at McMillen

FT. WAYNE, IND.—The appointment of Dr. Jack T. Tumlin as manager of veterinary research and service was announced recently by McMillen Feed Mills, Ft. Wayne.

Dr. J. T. Tumlin

Dr. Tumlin will be responsible for research on drugs, medications and all service activities relating to animal diseases in the field.

He was head of the poultry diagnostic laboratory of the School of Veterinary Medicine, University of Georgia, before joining McMillen. He received his B.S. degree from the University of Georgia, M.S. degree from the University of Tennessee and D.V.M. degree from the University of Georgia.

SHE CAN'T READ, BUT SHE KNOWS IT'S GOOD NEWS!

PRO-STREP *in her ration protects her health, aids her growth*

To get more pigs to market—healthier, heavier and more uniform in size—give them well-balanced feeds with PRO-STREP.

PRO-STREP is a combination of two antibiotics—*penicillin* and *streptomycin*—each with a highly specific activity. In PRO-STREP they work together to produce added benefits neither could furnish alone...to stimulate feed consumption, improve weight gains and feed conversion, promote better uniformity of gains *and* help prevent costly outbreaks of swine enteritis or "necro."

MAXIMUM EFFICIENCY at MINIMUM COST!
There is *no* antibiotic feed supplement you can buy today that equals the effectiveness of PRO-STREP—at such low cost. Plan a PRO-STREP feeding program that will give *maximum* efficiency at levels of up to 50 grams per ton, for *maximum* disease protection and feeding benefits. Merck Chemical Division, Merck & Co., Inc., Rahway, New Jersey.

PRO-STREP
(procaine penicillin and streptomycin in a ratio of 1:3)
with THE MERCK MARGIN OF SURETY

MERCK

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'Cheap Corn' Termed Industry's Biggest Competitor

AMES, IOWA—"Your biggest competitor for feed business in the coming months will be cheap corn," Francis Kutish, Iowa State University agricultural economist, told feed men attending the College-Feed Industry Conference here Sept. 18.

"Prices currently bid in the country for No. 2 corn range from 82@85¢ bu.," he said. "The kind of ration that looked good to a feeder when corn was priced at $1.50 bu. doesn't look as good when corn is selling for 85¢."

Prof. Kutish emphasized that the large supplies of feed grains—estimated at 165 million tons for the 1959-60 feeding year—are the biggest factor in the outlook for feeders and the feed industry.

The large supplies will lead to pressure for more livestock production in the next couple of years, he said.

Numbers Up

An estimated 100 million cattle will be on farms at the start of 1960, an increase of about 4 million from January, 1959. Most of the increase will be in steers and heifers, he said. Slaughter will probably total 2 million more next year, and prices will slide.

"However, the decline probably will not be sharp," he said. "I look more for an easing off in prices over the next two years—unless adverse weather causes heavy liquidation."

Feeders will want to shorten feeding periods when prices slip, and they will watch feed cost closely when fat cattle prices slip below the cost of feeders, he said.

When cattle prices are good, the range in prices between high and low quality beef is narrow, but when prices get lower the prices on lower grades drop faster than better grades, and the range widens. Because of this, Prof. Kutish advised, "It would be a good idea to stick to quality animals and shorter feeding periods."

Swine Outlook

Any increase in next year's spring pig crop over 3 to 5% will cause a sharp drop in hog prices next fall, the speaker said.

Prices for hogs dropped more than usual this summer because there were more early litters this spring. Although the heaviest slaughter will occur in the next six to eight weeks, the price decline in November will not be as great as usual because of spreading out of farrowings earlier in the spring period.

Prof. Kutish said it can be concluded that if corn continues to be pegged at 90¢@$1 bu., hog prices will remain within the range $12@15 cwt.

Prof. Kutish summarized: Over-all expansion in cattle and swine numbers will continue. Feeding profits for both will be lower. The key to the cattle outlook is the weather this winter, and hog prices will drop sharply if the spring crop expansion is too large.

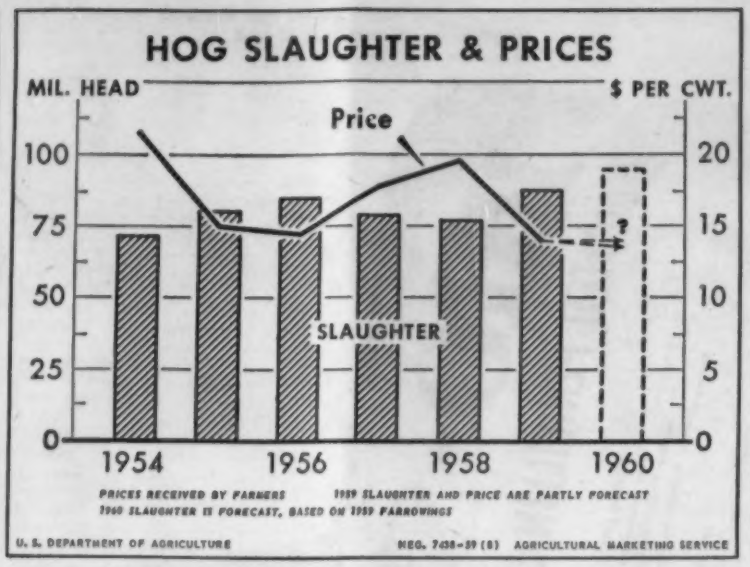
Charles Van Horssen, GMI Feed Man, Dies

CHICAGO — Charles Van Horssen, 71, retired feed executive of General Mills, Inc., died recently in a Moline, Ill., hospital after an extended illness.

Mr. Van Horssen served with General Mills in Minneapolis and later in Chicago. He retired about 10 years ago. He was widely known in Chicago feed circles, having been active in Chicago Feed Club activities for several years.

Survivors include Mrs. Van Horssen of the home in Evanston, Ill.; two sons, David of Morton Grove, Ill., and Arden of Minneapolis, and one daughter, Lorna Chandler, Galesburg, Ill.

Funeral services and burial were in Minneapolis.



WHAT'S AHEAD FOR HOG PRICES?—This chart prepared by the U.S. Department of Agriculture shows how hog slaughter and hog prices have fluctuated in opposite directions since 1953 and it indicates what might happen to slaughter and prices in 1960. Next year is not looked upon by USDA as a bright year for hogs, but the department's pig crop report for September indicates there has been a reduction in swine expansion and a reversal in the production trend may be at hand.

Contract Poultry Production Discussed at Michigan Event

By JAMES C. TOTTEN
Michigan State University

EAST LANSING, MICH.—The pros and cons of contract poultry farming—specifically the financing of small poultry farms by large feed companies—was a major topic at a Michigan State University conference recently.

"About 20% of the eggs produced today are from integrated farms, and the number will increase sharply in the next few years," a panel of experts told the annual Michigan Hatchery Conference at Kellogg Center.

The panel explained that the large initial investment necessary for full-scale hatchery operation brought about this kind of operation. This initial investment, said the panel, is about $30,000 for an operation involving 5,000 chickens. Profits are then split between the company and the operator, who actually is working for the feed company.

Panel moderator D. D. Moyer, of the A. E. Staley Manufacturing Co., Decatur, Ill., reminded the hatcherymen that contract poultry farming offers a means of financing for small producers who otherwise could not secure the large flocks needed for good profits. Also, Mr. Moyer said, the program promises reduced risks, greater security and increased income.

Faults of Contracts

But panelist Dr. Charles C. Sheppard, of the Michigan State department of poultry husbandry, cautioned the hatcherymen that many contracts favor the financing company at the expense of the producer.

Dr. Sheppard contended many farmers sign away all their legal rights. He pointed out that most of the contracts can be broken by the company at any time, but not by the farmer.

Often, Dr. Sheppard said, the contract does not specifically state the price the farmer will receive for his eggs, nor does the company assume any responsibility in case of disasters, such as fire and disease.

"The contracts leave too many unanswered questions," he stated, "and the producer is the party who gets hooked."

Panelist Peter Sikkema, of the Michigan Farm Bureau, suggested as an alternative that poultry farmers retain their independence by borrowing from banks or the Production Credit Assn.

He further advocated producers band together to control supply and bargain effectively with egg buyers.

Others on the panel were Floyd Collins, of Hi-Line Chicks, Tipton, Ind., and Virgil Gillen, of the Kroger Co., Hudson, Mich.

The conference, designed to offer information on the latest developments in the nation's hatchery industry, also hit on other topics of interest to the more than 100 hatcherymen in attendance.

Prof. Thomas Avery, of the poultry husbandry department, Kansas State University, discussed the future of the small egg producer. The 150-200 bird flock is doomed, he said, but 500-1,500 size operators can profit by good management, good stock, family labor and a marketing program on a diversified farm.

Another possibility, he added, is to join forces with neighbors with small flocks, pooling egg deliveries to processors to take advantage of premiums for larger lots of eggs.

Chick Purchase

Hugh S. Johnson, of the Michigan State department of poultry science, considered the pros and cons of buying baby chicks or 16-week-old pullets. He listed the advantages of the baby chicks as more efficiency, elimination of brooding and rearing equipment, greater availability of birds when needed, and the elimination of the

(Turn to MICHIGAN, page 110)

FEED INGREDIENT LAWS TO BE DISCUSSED

DES MOINES—Government regulations as applied to feed ingredients is one of the topics to be discussed at the annual convention of the National Feed Ingredients Assn. Oct. 1-2 at the Congress Hotel in Chicago. Peter W. Janss, association executive secretary, Des Moines, said the morning session Oct. 1 will include a talk by Dr. Charles H. Durbin, veterinary medical director, Food and Drug Administration, on "1959 Requirements for Clearing Feed Additives." Also scheduled is a talk, "Critique of Feed Additives," by Dr. W. M. Beeson, Purdue University animal scientist. A number of other prominent speakers also will be heard, and a general business meeting is planned for the morning of Oct. 2.

Conference Gives Feed Advertising Good Rating

By GEORGE L. GATES
Editor of Feedstuffs

AMES, IOWA—Some questionable approaches to feed advertising have been followed during the "growing up" stages of the industry, but by and large present advertising endeavors merit little criticism.

This appeared to be the general conclusion of feed executives and advertising men who participated in a session at Iowa State University Sept. 17, preceding the annual College-Feed Industry Conference on the campus. Attendance at the meeting totaled more than 100.

The topic of the afternoon was: "Advertising and Promotion—Let's Do It Right and in the Best Interests of the Feeder-College-Feed Industry."

Talks were presented by William Sayre, Ackworth, Iowa, feeder; Vernard Lundin, advertising manager, Hubbard Milling Co., Mankato, Minn.; J. S. McLaren, Fairall Advertising Agency, Des Moines; Richard Albrecht, Wallaces' Farmer, Des Moines, and C. R. (Dutch) Elder, director of information service for Iowa State.

Joining the five for a panel discussion later were: Norman Jacobson, dairy nutritionist, Iowa State; Dr. Charles Lewis, Kent Feeds, Muscatine, Iowa, and Ray VanPoucke, Ames (Iowa) Reliable Products Co., who served as moderator.

Here are some of the points brought out in the discussion:

Mr. Sayre: Advertising is one of the things that has made the U.S. economy a success. If farmers had spent as much in developing markets as they have in increasing production, we wouldn't have today's surplus troubles.

There has been a big improvement in feed advertising in the past few years. Today's successful farmer is a businessman, managing a farm worth $50,000 to $300,000, and advertising must match his qualifications and judgment.

Offers to try out "super-duper" feed at no cost don't appeal to me. I am not opposed to farmer dealers, but the program should be sound so that the farmer doesn't feel he is robbing his neighbors. Farmers are more suspicious because they have been taken advantage of.

The feed industry has a moral responsibility to farmers. Some farmers have the idea that the feed industry

(Turn to FEED ADVERTISING, page 110)

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Midwest Council Meets at Ames

AMES, IOWA—Suggestions for developing a program for the next meeting of the Midwest Feed Advertising Council were discussed at a session of the group here Sept. 17.

The group is scheduled to meet next during the Midwest Feed Manufacturers Assn. convention in Kansas City Feb. 8-9. One suggestion for the group was that a "workshop" session, similar to those held by other advertising associations, be planned. No definite decision was made, and the planning assignment was delegated to a five-man committee.

Named to the committee were: Ray Gould, Dannen Mills, Inc., St. Joseph, Mo.; Harvey Bergren, Pay Way Feed Mills, Kansas City; Jack Dow, the Dow Agency, Omaha; Vernard Lundin, Hubbard Milling Co., Mankato, Minn., and Lloyd Larson, Midwest Feed Manufacturers Assn., Kansas City.

Other discussions centered about a previously - proposed suggestion to form a "screening committee" which would be available for advising publications on questionable advertising claims.

PURINA OPENING—A portion of the estimated 10,000 people who attended the opening of Ralston Purina Co.'s new mill at Ottumwa, Iowa, are shown at the left lined up for lunch. Ten double lines of visitors moved briskly through the tented serving stations. Members of the Ottumwa police force, augmented by several state policemen, had their hands full handling traffic—"the biggest jam since the Madison St. bridge went out," according to one officer. They were rewarded with first servings of chicken. At the right is shown the pig parlor display set up on the grounds.

Late Strength in Oilseed Meals

Oilseed meals, millfeeds and alfalfa meal took jumps in price this week, but the oilseed meal hikes came late in the week, as indicated by the table below which shows lower instead of higher prices for oilseed meals as of Sept. 22.

During the week ended Sept. 22, ingredient prices were mixed in most markets, but in spite of gains in millfeeds, feedstuff prices averaged slightly lower at main markets, with weaknesses showing up in vegetable proteins, corn by-product feeds and brewers' dried grains.

The nation's millfeed production went up to 94,400 tons during the week ended Sept. 22 from 81,400 tons a week ago. Even so, while production was up, the mills offered less freely and, at the same time, jobbers and mixers reportedly showed more interest on the buying side.

Average Bulk Prices and Index of Weighted Prices*

(Dollars per ton)

	Sept. 22, 1959	Sept. 15, 1959	Change from previous week
OILSEED MEALS			
Prices at prin. mkts.:			
Soybean meal	59.30	61.00	—1.70
Cottonseed meal	57.65	57.60	+ .05
Linseed meal	73.40	74.00	— .60
Copra cake & meal	70.50	70.50	...
Peanut meal	56.00	55.50	+ .50
Index	70.3	79.8	—1.5
ANIMAL PROTEIN FEEDS			
Prices at prin. mkts.:			
Meat meal	77.40	77.45	— .05
Tankage	79.10	78.85	+ .25
Fish meal	124.50	126.00	—1.50
Index	76.7	77.0	— .3
GRAIN HIGH-PROTEIN FEEDS			
Prices at prin. mkts.:			
Gluten feed & meal	40.40	40.80	— .40
Dist. dried grains	45.20	48.20	—3.00
Brewers dried grains	38.00	38.50	— .50
Index	63.7	65.1	—1.4
WHEAT MILLFEEDS			
Prices at prin. mkts.:			
Bran	35.60	34.05	+1.55
Middlings & shorts	39.80	36.90	+2.90
Index	68.1	64.2	+3.9
OTHER MILLFEEDS			
Prices at prin. mkts.:			
Hominy feed	37.80	39.15	—1.35
Rice bran	29.50	31.00	—1.50
Index	58.8	61.0	—2.2
ALFALFA MEAL			
Prices at prin. mkts.	48.50	48.35	+ .15
Index	93.4	93.1	+ .3
MOLASSES, FEEDING			
Prices at prin. mkts.	23.05	23.16	— .11
Index	68.6	68.9	— .3
ALL FEEDSTUFFS			
Index	74.0	74.3	— .3
FEED GRAINS			
Prices at prin. mkts.:			
Corn	38.30	40.20	—1.90
Oats	44.60	44.00	+ .60
Barley	42.00	42.00	...
Grain sorghums	35.30	35.40	— .10
Index	63.3	65.5	—2.2

*Base period of index is 1947-49.

DO HIM A FAVOR HE'LL REMEMBER

Remind him to order Morton T-M Salt. See page 35.

New Law Limits Sale Of 'Ungraded' Eggs

AUGUSTA, MAINE—Under a new law which became effective recently the Maine Department of Agriculture has announced that the sale of "ungraded" eggs by anyone except producers will be discontinued in the state.

The intent of the action is to prevent the sale of low quality eggs as "ungraded." An estimated one fourth of all housewives in the state buy ungraded eggs.

The choice will be among Grades AA, A, B or C. Eggs not meeting those grades can be sold only as "checks, cracks or dirties." Containers still must be marked as to grade and size.

Producers selling eggs from their own farms are exempt, unless their cartons are marked as to grade, quality or size.

'New Look' Seen in 1960 Agriculture

LENNOX, S.D.—The "new look" of the 1960's will be new systems of raising livestock and poultry in volume with low labor cost, according to E. C. Fuller, executive vice president of Nutrena Mills, speaking before the Lennox Kiwanis Club here Sept. 24.

Mr. Fuller, attending open house ceremonies at Nutrena's recently completed feed mill here, said that the last 20 years brought great strides in the mechanization of crop production, but most cattle, swine and poultry are still handled in small units requiring much hand labor and chore time. This is changing rapidly, with resulting increases in output per man-hour, reduction of production cost per unit and relief from time-consuming farm chores, he said.

He described as "a far reaching and sometimes spectacular activity" the development of "turnkey" systems—complete birth-to-market production programs—designed to gain maximum output from time and money invested. He noted Nutrena's Pigloo system, company-designed isolation program for swine, that makes it possible to raise 900 hogs a year with the labor of less than one half man.

Such automated systems will, in the opinion of Mr. Fuller, strengthen rather than weaken the position of the "family farm" in the agricultural economy, because it will be possible for a family unit to produce livestock or poultry in considerably greater volume while cropping a farm of large size, without hiring extra labor.

Mr. Fuller also recommended, as a means of reducing burdensome surpluses and expanding agricultural markets, gradual elimination of farm subsidy programs and a return to a more normal supply and demand situation for control of production, purchase and storage of agricultural goods.

Cargill Directors Elect New Board Member

MINNEAPOLIS — H. Robert Diercks has been elected to board membership by the board of directors of Cargill, Inc., according to John H. MacMillan, Jr., chairman of the farm products firm.

H. R. Diercks

Mr. Diercks has been vice president in charge of Cargill's grain division since 1954, supervising the purchase, handling, storage, distribution and sales of grain domestically and for export.

The new director replaces James E. Dorsey, who died recently while hunting in Idaho.

H. H. Finch to Join GMI in Minneapolis

MINNEAPOLIS—Henry H. Finch, who now serves as purchasing agent for the Sperry (West Coast) Operations of General Mills, Inc., San Francisco, will join the company's purchasing department in Minneapolis.

C. V. Nelson, director of purchases, announced recently that Mr. Finch will become assistant to the director of purchases on Jan. 1, 1960.

Waldo L. Nelson, General Mills, Minneapolis, will replace Mr. Finch in the San Francisco position.

James B. Rogers Dies

LOS ANGELES—James B. Rogers, 84, father of Don E. Rogers, vice president and central states manager of the Miller Publishing Co., died recently. James Rogers, a retired railway postal official, moved to California about 10 years ago from Kansas City.

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ROLL GRINDING — ROLL CORRUGATING

FOR FLOUR, FEED, RICE AND OIL MILLS

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Tastelation® **FERMAZYME**

The ENZYMATIC fermentation product that works with all grains, permits deletion of animal protein, cuts cost of feed manufacturing as it steps up feed efficiency. Write for details.

TASTE ENGINEERING, INC.

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Manufacturers • Importers • Distributors

Judge Okays Sale Of Chemell Chicks To Milling Firm

Feedstuffs Special Writer

ATLANTA—Approval of the sale of several thousand Chemell hatched pullet chicks to the Pitt Milling Co., Greenville, N.C., was given this week by J. Ellis Mundy, referee in bankruptcy, following consent of the committee named to represent creditors of the Chemell corporations seeking a moratorium on several million dollars in debts under Chapter 11 of the Bankruptcy Act.

Liens for 36¢ per bird, less 20%, held on some of the birds by Talcott, Inc., New York investment firm, were waived in order for the mill to secure financing of the transaction through a North Carolina bank. According to a spokesman for Talcott, the funds will be paid to Chemell, Inc., and through that corporation, the notes on the birds involved will be paid.

He said Talcott had agreed to sale under these conditions after a conference with the creditors committee. He said also that Talcott will accept new notes on pullets available for sale to producers as well as some which have already been sold in lieu of debtor certificates. These certificates have been authorized by Judge Mundy pending outcome of acceptance or rejection of Chemell's proposed reorganization plan.

Talcott attorneys said the agreement was reached on the sale of these birds in view of that firm's efforts to "assist in an orderly reorganization of the Chemell corporations," and added, "We are trying to by-pass any legal action that could result in bankruptcy litigation."

W. B. Spann, Jr., attorney representing Paymaster Feed Mills, Abilene, Texas, said at the hearing last week he will recommend his client proceed against the two Chemell Texas corporations which he claims owe his client approximately $50,000.

In other action this week, Judge Mundy approved the appointment of A. J. Stephens, Ralston Purina Co., St. Louis; Dr. Fred Smith, Vantress Farms, Duluth, Ga., and Wayne Corpening, Wachovia Trust Co., Charlotte, N.C., as trustees of the Chemell stocks, with C. K. Groves, president of the debtors in possession, and L. A. Chemell.

C. W. Milligan, Mr. Chemell's management consultant, who had recommended the petition for a moratorium, resigned following presentation of reorganization suggestions to creditors in a meeting in Gainesville, which was held before the hearing in federal court here last week.

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Sections of Story Repeated for Clarity

Because of a typographical error, the editors of Feedstuffs repeat below two paragraphs, in their corrected form, from a Sept. 19 issue news story which reported the proceedings of a hearing at Atlanta, Ga., involving the financial position of poultry producing and processing corporations in which L. A. Chemell is the majority stockholder.

The first erroneous paragraph should have read:

"Mr. Chemell declared in sworn statements that he is 'unfamiliar' with the financial structure and detailed operation of some 20-odd corporations in which he is the majority stockholder and president. He stated that this was especially true of Chemell, Inc., the firm which was organized in March, 1958, to develop commercial egg business and is one of the three listed in the petition for the moratorium under Chapter 11, Title 2, of the Bankruptcy Act."

The other paragraph which contained a typographical error should have read:

"Talcott (Inc.) attorneys challenged these statements, declaring that few of the notes on some $450,000 handled under this plan have been paid, and that Talcott, Inc., is primarily interested in collecting money past due as well as that due when other notes mature. The attorneys claimed that Chemell, Inc., in taking a note for the full amount of the cost of the mature bird on which was a 36¢ lien, actually sold Talcott property without the firm's consent and permission and had failed to secure a clear title to the birds."

THE PRICELESS EXTRA

P.T. Personal Touch service by Amburgo

authorized as a distributor

BACIFERM

and other leading feed additives, minerals and antibiotics.

THE AMBURGO CO., INC.

Gen. Offices: 1315 Walnut St., Philadelphia 7

Hope, Indiana Fresno, California

Stocker and Feeder Cattle and Sheep Received in Several North Central States, August, 1959, With Comparisons*

Cattle and Calves

State	Public Stock Yards		Direct		Total			
	August		August		August		July-August	
	1958	1959	1958	1959	1958	1959	1958	1959
Ohio	5,622	11,080	1,046	1,236	6,668	12,316	12,326	18,509
Indiana	10,298	11,281	5,490	6,060	15,788	17,341	30,672	32,852
Illinois	33,509	39,099	41,464	44,952	74,973	84,051	120,778	148,091
Michigan	2,157	2,322	869	2,452	3,026	4,774	7,676	8,064
Wisconsin	616	1,144	111	1,195	727	2,339	1,694	3,645
Minnesota	12,986	12,832	15,942	27,033	28,528	39,915	55,291	72,414
Iowa	86,495	87,556	94,755	115,952	181,250	203,508	283,476	344,385
South Dakota	7,200	7,032	4,119	4,616	11,319	11,648	22,048	24,173
Nebraska	22,051	30,943	19,305	37,625	41,356	68,568	78,988	121,566
Total 9 States	180,934	203,289	183,101	241,171	364,035	444,460	612,949	773,699

Sheep and Lambs

Ohio	1,836	3,949	1,173	1,493	3,009	5,442	6,665	10,861
Indiana	12,122	4,287	6,128	11,017	18,250	15,304	23,919	24,312
Illinois	15,678	16,378	78,510	55,837	94,188	72,215	135,254	105,686
Michigan	461	3,107	---	370	461	3,477	1,031	4,376
Wisconsin	23	1,756	---	240	23	1,996	423	2,256
Minnesota	9,761	11,438	21,422	21,738	31,183	33,176	51,225	49,092
Iowa	27,181	34,663	122,833	199,404	150,014	234,067	305,551	338,686
South Dakota	12,806	13,532	3,371	9,093	16,177	22,625	34,244	47,670
Nebraska	32,748	28,284	10,154	14,189	42,902	42,473	59,366	67,561
Total 9 States	112,616	117,394	243,591	313,381	356,207	430,775	621,678	650,500

1/ Data in this report are obtained from offices of State Veterinarians. Under "Public Stockyards" are included stockers and feeders which were bought at stockyards markets. Under "Direct" are included stockers and feeders coming from other States from points other than public stockyards, some of which are inspected at public stockyards while stopping for feed, water, and rest en route.

Grain Elevator Falls Into Lake Superior

PORT ARTHUR, ONT.—One section of a waterfront grain elevator owned by United Grain Growers, Ltd., collapsed this week, spilling more than 2 million bushels of grain into Lake Superior.

Police estimated the total damage at about $10 million.

Wheat, oats, barley and flaxseed were dumped into the water as several tons of concrete gave way, creating a 12-ft. wave which grounded a tug, dislodged half a dozen float planes moored nearby and flooded a nearby pumping station.

It was the south annex of the elevator, located next to a 150-ft. high workhouse, that collapsed. The annex contained 64 bins, each 96 ft. deep.

The Thunder Bay Harbor Improvement recently began driving steel pilings along the concrete front of the elevator next to the water to help stop deterioration.

Statement Made on Poultry Implants

WASHINGTON — Although the Food & Drug Administration has not issued a formal statement on stilbestrol poultry implants per se, such implants would be in violation of the Food Additives Amendment to the Federal Food, Drug and Cosmetic Act, according to Dr. Charles G. Durbin, veterinary medical director, FDA.

He said stilbestrol implants in poultry is a matter "no different than any other" that would be handled under the amendment, and added that these implants "would be subject to the statement of policy regarding veterinary drugs that may result in a residue regardless of the mode of administration and would be considered as cancer-producing agents."

Dr. Durbin pointed out that if the use of a stilbestrol implant in poultry results in a tissue residue of the drug in the birds when they are marketed for human consumption, this use would be in violation of the amendment.

Triangle Feed Mills Sold to Dannen Firm

HARLAN, IOWA—Triangle Feed & Roller Mills Co., Harlan, has been sold to Dannen Mills, St. Joseph, Mo.

The Triangle plant manufactures feeding rolled oats, oat flour, oat groats, oat mill feed and pulverized oats for the feed trade. The products are now being manufactured and sold under the Dannen brand.

Dwight L. Dannen, company president, said acquisition of the oat mill is a continuation of the firm's plan for growth and diversification. Output of the plant, he said, will be mechanized by the Dannen grain and jobbing division.

Norman Leavitt, former owner of the Triangle mill, is moving to Montana. Norman Holcombe will remain as manager of the Iowa plant.

George C. Abbey Dies

SYRACUSE, N.Y.—George C. Abbey, 76, retired operator of the Abbey & Sons Feed Mill in Brewerton, died recently.

Surviving are a daughter, Mrs. Charles Tharratt; two sons, Kenneth and Emerson Abbey; and three grandchildren.

FEED GRAIN

(Continued from page 1)

some further increase in the total feed grain carryover is in prospect at the close of the 1959-60 season. Larger stocks of corn are expected, but a substantial reduction in oats stocks and some decline in barley stocks appear likely.

Production Ahead of Use

Total utilization of feed grains has increased substantially in recent years, but it has failed to keep pace with production increases. A record consumption high of 149 million tons was reached in 1958-59. This figure is 12% above 1957-58 and a fifth larger than the 1953-57 average. About 124 million tons of this total were fed to livestock. Utilization is expected to continue heavy in 1959-60, and it is likely it will exceed the high level of 1958-59.

Corn—The 1959 corn crop was estimated in September at 4,382 million bushels, 15% ahead of last year's record crop. With a record carryover of 1,550 million bushels in prospect for Oct. 1, the supply for 1959-60 would total about 5,933 million bushels—some 662 million bushels above the 1958-59 supply.

Sorghum grain—Now estimated at 566 million bushels, the sorghum grain crop is 8% below the 1958 crop, but more than twice the 1953-57 average. The prospective Oct. 1, 1959, carryover of 500 million bushels is almost 200 million above that on hand Oct. 1, 1958. USDA estimates that the total 1959-60 supply of sorghum grain at 1,066 million bushels, exceeds either oats or barley in total tonnage for the first time. Sorghum grain prices may be low relative to corn this fall when the big 1959 crop is harvested.

Oats—Supplies of oats for 1959-60 are now estimated at 1,464 million bushels, 16% below last year's bumper crop. The 1959 crop of 1,075 million bushels is 24% below the 1,422 million produced in 1958, but the total carryover of oats on July 1 (369 million bushels) is a record—44 million above last year's July 1 carryover. Oats prices probably will continue higher than normal relative to corn prices during 1959-60.

Barley—It is estimated that the barley supply is now at 621 million bushels, 31 million bushels less than for last year but 126 million above the 1953-57 average.

Oilseed meals—Total soybean meal production this year is now estimated close to 9.6 million tons, 15% over 1957-58 and 45% above the 1953-57 average. Coupled with the indicated record Oct. 1 stocks, the soybean crop of 533 million bushels (7% less than last year) should provide enough beans to maintain the record 1958-59 rate of crushing in 1959-60.

Cottonseed production this year is expected to be about a fourth larger than last year, which will provide for much larger crushing in 1959-60 than the relatively small 1958-59 volume. The flaxseed crop, on the other hand, is much smaller than last year.

Based on these prospects for oilseed supplies, it appears that total production of oilseed meals should increase in 1959-60, with most of the increase in cottonseed meal.

Linseed meal prices may continue relatively high in 1959-60 in view of prospects for small supplies compared with that of soybean and cottonseed meal.

Dan Jones Resigns

METROPOLIS, ILL.—Dan G. Jones has resigned as district manager for Honeggers' & Co. to become vice president in charge of sales for Valco Feed Products, Inc., a new feed plant.

Mr. Walters, president of the new firm, has operated a feed plant in Metropolis for the last 20 years serving southeastern Illinois and western Kentucky.

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Panelists Tell What They Think Of Industry at University Event

By FRED TUNKS
Feedstuffs Staff

ST. PAUL — Minnesota feed men found what others involved in livestock production think of them when a panel including a producer, representatives of the state's agricultural extension service and research staffs and a veterinarian let go with their personal opinions this week during the 12th annual Animal Nutrition and Health Short Course sponsored by the University of Minnesota Institute of Agriculture.

Their constructive criticism included both sincere praise and censure as they were called on to express their views on how to improve communications and cooperation between the producer and the specialists who provide him with products, services and assistance.

The panel's judgments weren't confined to the feed industry alone, however. Practices and policies of veterinarians and of university agricultural extension were appraised, too.

Feed industry representatives in the audience were told that they are "key contacts" in passing on to the producer helpful information developed by federal and state agencies, agricultural research centers and industry.

Today's feed salesmen, it was stated, are of a "higher type" than in some years back. The feed industry was described as "coming of age," having the opportunity to provide service as well as sales."

Comments on Complete Feeds

A trend within the feed industry to produce and sell a greater volume of complete feeds was seen as undesirable by a couple of the panelists—a farm manager and a county extension agent.

Edgar Urevig, manager, Tilney Farms, Lewisville, Minn., gave feed men credit for trying to do a good job and working closely with experts to give the farmer the most for his money. He said, "Feed salesmen are of a higher type than they used to be and they are sincere in putting out a good product."

G. J. Kunau, Goodhue County, Minn., agricultural agent, agreed that feed dealers are "doing a better job of doing the producer some good."

Mr. Urevig brought into the discussion the "tendency to sell complete feeds" to producers. "The trained farmer doesn't want to buy complete feeds when he has most of the ingredients on his farm."

Along this same line of thought, Mr. Kunau commented, "The farmer's job is marketing his own grain through his livestock. . . . What he does need are supplements and concentrates to round out his own grain to make a good feed."

These observations prompted a question from the floor. It was asked of Mr. Kunau whether it might be just as profitable for a farmer to feed a pelleted complete feed as adding supplements to his grain because of savings in labor, handling, storage and less waste. The answer, he said, would depend on the individual operation and would be connected to each farm's fertility, affecting the feeding value of the grain.

Mr. Urevig was asked, "What do you want in a farm feed salesman?" He answered that a feed salesman should be up to date on latest research and be sufficiently informed so that he can be depended on for reliable information. "A well trained feed salesman can be good for the community and the farmer," he said.

Wants "Package" Information

Concerning the main theme of the discussion—communications and cooperation—Mr. Urevig suggested that a select group of specialists representing all phases of livestock production get together and organize recommendations which would help the producer answer questions involved in the setting up of a complete program for swine, cattle or poultry.

He said there was a tendency among university departments "to be too independent of each other." He said nutritionists, geneticists, veterinarians and other specialists should work more closely. "To whom would I go to get package information to start a hog program?" he asked. "There is a need for all groups to get together to discuss problems," he said.

Dr. H. J. Sloan, director, University of Minnesota Agricultural Experiment Station, was the first panelist introduced by the moderator, Dr. C. L. Cole, professor and head, department of dairy husbandry. It was Dr. Sloan's view that the university "can't afford to do research for fun. We want to get the information out to the people who can use it." He said researchers are now realizing that it is important for their own good to make known their findings and work to establish a reputation.

He said feed men are an important link in the chain which passes information from the university on to the producer. "We can contact more producers through you than on our own," he said. "A real effort needs to be put forth in training the people who make the contacts with the producer."

He also emphasized that services of the university's researchers are available to the feed industry and to other industries as well as to the producer. "Bringing questions to our researchers keeps them current on latest problems," he commented.

Dr. Sloan pointed out that university people believe they are in a better position to report on research projects as they develop rather than waiting for final conclusions because those who put this information to use are more knowledgeable today and realize the difference.

Represents Feed Industry

R. M. Edstrom, Glencoe (Minn.) Mills, Inc., representing the feed industry on the panel, remarked, "The producer and the feed industry need each other," and then outlined the means by which the industry communicates with the producer.

He mentioned direct mailing pieces, such as company magazines; press, radio and TV advertising, and publicity information.

Tours of feed plants by high school and college students and others were cited as a means of acquainting the public with the industry. Feed companies and associations, he said, provide scholarships and grants to promote a growth of interest and knowledge in agriculture.

Mr. Edstrom quoted a recent editorial from Feedstuffs to point out to his audience that feed companies draw upon the knowledge of experts in many fields to give the feeder the best feed at the lowest cost.

"Industry Changing"

"The feed industry is changing," said Prof. Ralph Wayne, Minnesota extension dairyman. "I think it is coming of age. There was a time when severe abuses were inflicted on our farms. But most of this is in the past."

He noted that more college graduates are on farms today and commented that this development has contributed to the fact that "we are dealing with a different group of people than we were 25 years ago." Prof. Wayne said farmers are getting to know more and more what they need, and "feed dealers should sell what the farmer needs, not what he has on hand."

In his opinion, "It is ridiculous to sell a 10% protein feed to a dairyman when his crib is full of corn and his bins are full of grain. He should be sold a high protein supplement."

Prof. Wayne also remarked that feed men have "a marvelous opportunity to provide services as well as sales," and he asked members of the audience if they were keeping up with the latest information in their trade.

Feed men were interested in Mr. Urevig's suggestion that county agricultural agents become more specialized and that these specialists serve several counties. As an example of his suggestion, he said the producer might be served better if an agent concentrated on all aspects of hog production — breeding, environment control, feeding, etc.—and made his knowledge available to farmers in a group of counties. Also serving these counties would be specialists in cattle, poultry and perhaps in other fields, such as crops.

"It is utterly impossible for a county agent to know all there is about agriculture," he said. "He has got to specialize."

He voiced the opinion that two thirds of the people producing hogs today are going to be out of the business in the future. "There still are farms with incomes less than if the corn grown were sold on the market," he said.

Prof. Wayne considered Mr. Urevig's idea on county agent specialization a good one, and noted that "this procedure has been followed in Europe for many years."

Veterinarian's Views

Dr. L. T. Christensen, Hancock, Minn., veterinarian, portrayed the producer as "a specialist and an artist." He said the farmer has to have the knowledge of a specialist and the feel of an artist to do a good job of feeding.

Dr. Christensen said he believed there had been some improvement made over the past few years in the working relationship between feed men and veterinarians. But it was evident from some of the questions and comments brought forth during the panel discussion that there still are some differences that haven't been ironed out.

"We have been accused of not knowing anything about nutrition, but this is not true," he said. "Too often the only information we have to go on are the ingredients listed on the tag. It would help us if we knew exactly what the ingredients were."

He warned feed men that they should be careful about making disease diagnosis. "Different diseases often carry similar symptoms and may be confused," he stated.

Answering a charge from Mr. Urevig that the veterinarian sometimes "doesn't tell the farmer any more than he has to," Dr. Christensen rebutted with the comment that the veterinarian, in some cases, is protecting the producer by not explaining a diagnosis fully. "If he knows what's being used for treatment, he may try something that looks similar but won't do the job," Dr. Christensen said.

Veterinarians were charged with blaming feed "when they can't find out what the trouble is." Dr. Christensen said there is such a thing as "feed poisoning," and it more often involves how feeds are used than what is in them.

Dr. Christensen was asked from the floor: "Is your state or national association doing anything about keeping vets out of selling feed?"

And he retorted, "About as much as you (feed men) are doing to keep feed men out of the veterinarian's field." Dr. Christensen said a survey had shown that feed stores are selling veterinarian supplies and he noted that some feed companies are using veterinarian services as a part of their feed sales programs.

Dr. Christensen said veterinarians and extension agents "should get together more," and he urged feed men to communicate with veterinarians on nutrition problems.

SHORT COURSE PANELISTS—Views on communications and cooperation between the producer and specialists were expressed recently by these panelists, who appeared on the program of the 12th annual Animal Nutrition & Health Short Course sponsored by the University of Minnesota Institute of Agriculture. They are, left to right: Prof. Ralph Wayne, extension dairyman; Dr. C. L. Cole, head, department of dairy husbandry, moderator; Dr. L. T. Christensen, Hancock, Minn., veterinarian; G. J. Kunau, Goodhue County, Minn., agricultural extension agent; Edgar Urevig, manager, Tilney Farms, Lewisville, Minn.; R. M. Edstrom, Glencoe (Minn.) Mills, Inc., and Dr. H. J. Sloan, director, University of Minnesota Agricultural Experiment Station.

General Mills District Sales Manager Retires

MINNEAPOLIS—Chester W. Jenson, former district sales manager in Tampa, Fla., for the feed division of General Mills, has retired after 40 years of service.

C. W. Jenson

Mr. Jenson joined Washburn Crosby Co., predecessor of General Mills, in 1919. After spending 10 years in the Minneapolis office and as a salesman in Wisconsin, he was assigned to the farm service division, working with General Mills feed stores in the Midwest.

He was elected a vice president of the farm service division in 1943 and served in that capacity until the division was incorporated with the present feed division in 1953.

Mr. Jenson and his wife plan to make their home in California where he intends to continue his business contacts in the feed industry and its allied fields.

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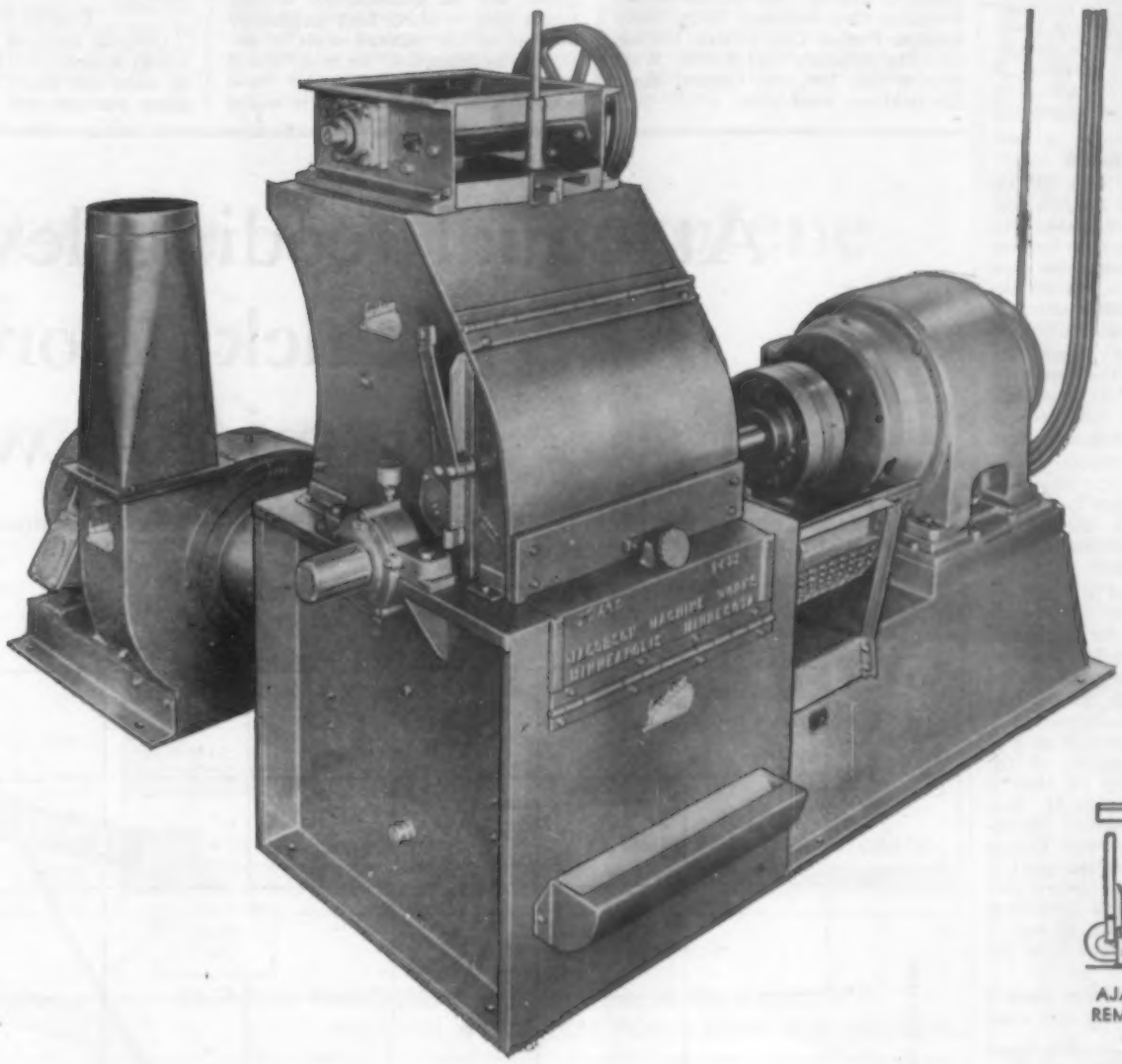

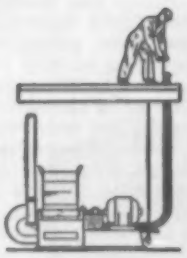

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Additional Funds Needed for Straube Memorial Scholarship House at K-State

MANHATTAN, KANSAS — Additional contributions for the Oscar Straube Memorial Scholarship House at Kansas State University will be needed if the program is to go forward as scheduled in 1960.

This was indicated this week as university officials outlined the status of the scholarship house program, established in memory of the late Oscar Straube, who was president of Pay Way Feed Mills in Kansas City and an active industry leader in the American Feed Manufacturers Assn., Midwest Feed Manufacturers Assn. and other groups.

The program calls for the purchase and furnishing of a fraternity house at K-State, and this house is then to be used by 45 qualified students in feed technology and related fields who will operate the house themselves and not have to pay rent.

$25,500 More Needed

K-State officials said that $13,000 has been contributed but that the goal is $38,500. This, they said, means that if the scholarship house is to become a reality, interested companies and individuals will have to assume the responsibility for 14 additional rooms in the house at a cost of $25,500.

The program for "permanent scholarships" through the memorial scholarship house was initiated last fall by a donation of the Straube family and other donations of friends.

Then last spring, an industry committee—headed by J. C. North of Nutrena Mills, Inc., and Dean McNeal of The Pillsbury Co., Minneapolis—began seeking donations of the "permanent scholarships."

Companies were asked to "buy" and furnish various rooms in the scholarship house, with costs for the rooms ranging from $1,000 to $5,000. Each room will bear the name of the donor.

The Endowment Assn. at the university entered into a contract with the Kappa Sigma fraternity to purchase and take possession of the fraternity house on May 30, 1960, it was explained by Kenneth M. Heywood, director of endowment and development at the university. During the three months before the start of the 1960 fall term, it is hoped that the house can be put into "first class condition" for the first group of Straube scholarship recipients in the fall.

R. I. Throckmorton, former dean of agriculture at K-State and now associated with the endowment office, noted that contributions for the Straube house made a good start but then declined.

"As of this date," he said, "contributions have been received for eight rooms in the amount of $13,000. If this facility to assist in increasing the number of men preparing for work in the field of feed technology is to become a reality, it will be necessary for interested companies and individuals to assume responsibility for 14 additional rooms at a cost of $25,500."

Contributors

Companies which have "purchased" rooms to date are the Walnut Grove Products Co.; Nutrena Mills, Inc.; Ralston Purina Co.; Albers Milling Co.; The Pillsbury Co.; Sprout, Waldron & Co., Inc., and Central Soya Co.-McMillen Feed Mills.

"It is hoped that when the house becomes available in June, 1960, funds will be available to complete the purchase of the property, furnish the rooms and purchase kitchen and dining room equipment," Dean Throckmorton said. "It is essential that the university know early in 1960 whether the scholarship house will be a reality by that fall because the scholarship committee will award the scholarships for 1960-61 during the second semester of the current academic year."

Need Cash Scholarships, Too

Dean Throckmorton pointed out that the establishment of the house will not eliminate the need for cash scholarships in feed technology.

"Although the Oscar Straube Memorial Scholarship House will be a great aid in encouraging worthy young men to study feed technology because of the reduced costs of obtaining an education," he said, "it will not eliminate the need for cash scholarships. For example, it would not be possible for a married student to live in the scholarship house, regardless of need for financial assistance. Also, in the case of out-of-state students, the higher fees would make it desirable, and in some cases necessary, to provide a cash scholarship in addition to the privilege of living in the house.

"Some companies are well aware of the necessity of continuing cash scholarships for students in feed technology. For example, in the past, Ralston Purina Co. has been providing $3,200 annually for eight scholarships. The university has recently been assured that cash scholarships will be continued by the company after the scholarship house becomes available in such amounts as experience and need indicate will be required to provide well trained men for the industry."

Priority Outlined

Officials indicate that feed technology students will have first priority in using the house and then certain other students will be eligible to be

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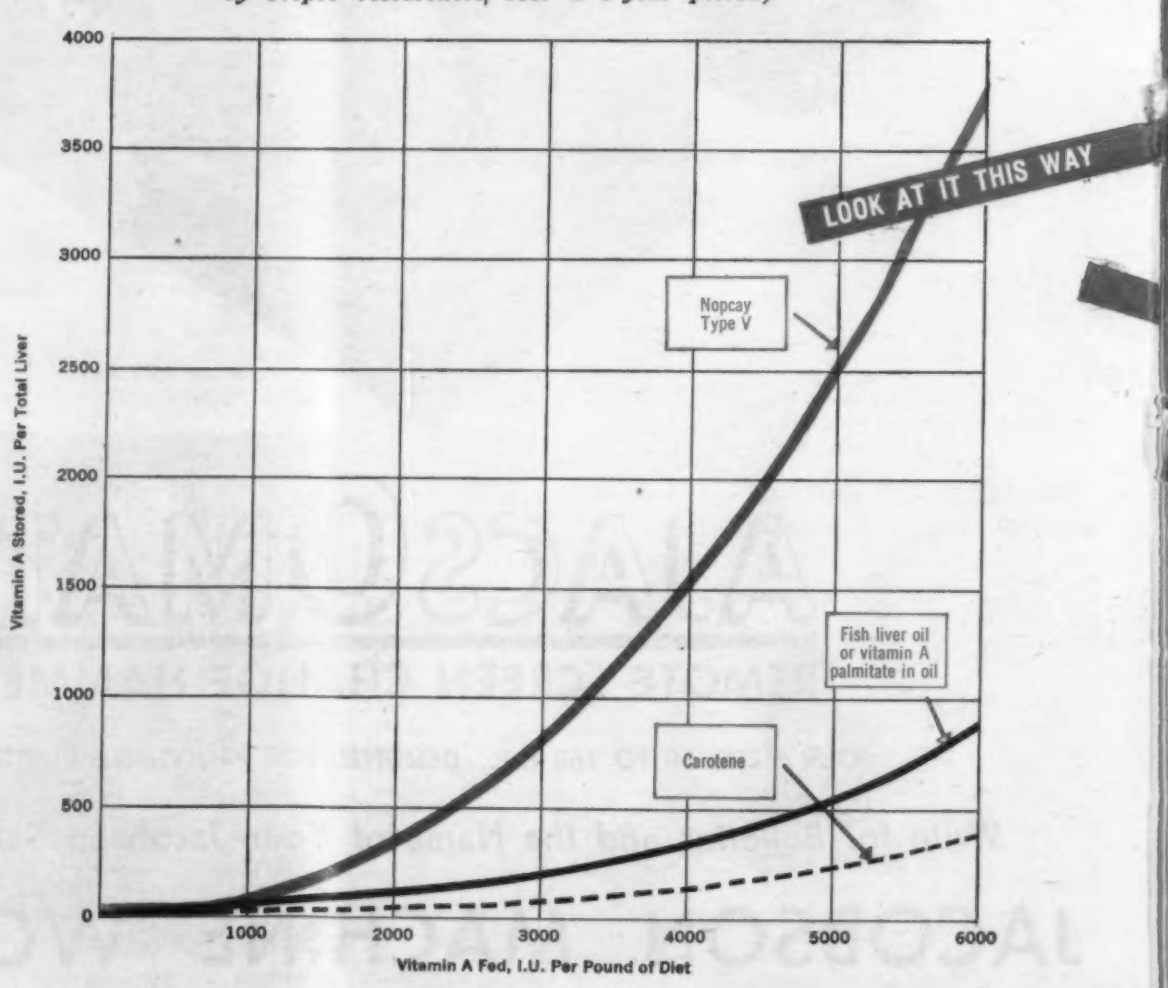

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assigned to any remaining rooms.

Dr. James A. McCain, president of the university, said: "The priority order for the assignment of students to the scholarship house is this: First priority will be given to students majoring in feed technology, second priority to students majoring in other animal industry fields, and third priority to students majoring in other departments in the School of Agriculture.

"To express it another way, if 45 students of above average academic ability planning to major in feed technology applied for admission to the house, all 45 would be assigned, thereby filling the house. If only 10 such students apply, then the remaining 35 places will be assigned first to students in animal, dairy and poultry husbandry, and next, to students in agriculture. If all applicants from these fields are screened and there are still vacant places, then they will be filled by the assignment of students majoring in other branches of the university.

"In the case of the Straube house, as with all other types of scholarship assistance available to our students, the selection of students will be cleared through a central scholarship committee."

When the program was announced, it was explained that savings to students, made possible by free rent and operation of the house themselves, will amount to about $400 a year. This is equivalent to the average yearly cash scholarship.

Dr. McCain said that with competition among industries for better college graduates increasing, the scholarship house program can be a valuable help to the feed industry in encouraging more qualified students to study feed technology.

"This is a unique and effective way," Mr. North said, "for any company to help the feed industry and at the same time earn the lasting gratitude of a large number of deserving students for years to come. Many of these men are likely to become the next generation of industry leaders."

New Arkansas Poultry Plant in Operation

FT. SMITH, ARK.—An open house was held recently at the new poultry processing plant of O. K. Processors, Inc. The $225,000 plant will process for market about 8 million broilers a year.

President of the firm is Collier Wenderoth, Jr., who also is president of O.K. Feed Mills in Ft. Smith.

Some 185 growers are under contract to produce broilers for processing at the plant. In addition, O. K. Feed Mills has connections with three hatcheries which supply about 100,000 baby chicks a week, Mr. Wenderoth said.

One million broilers are under contract arrangements. Mr. Wenderoth said the birds are averaging 3.3 lb. in nine weeks and that most growers are getting 1 lb. of broiler on 2.2 lb. of feed. All feeds are pelleted or crumblized, with three pellet mills running on a 16-hour basis to supply the feed.

O. K. Processors also has established the Modern Meat Co., which buys 18,000 lb. of inedibles daily from the poultry plant and 10,000 lb. of feathers, which are converted into fertilizer and feed products.

The market for the broilers is generally the area west of the Mississippi River, officials said.

O. K. Feed Mills was founded in 1933. Collier Wenderoth, Jr., has been active in the business since 1948 and has been president since the death of his father in 1955. The firm currently produces about 50,000 tons of feed a year.

STAND BY FOR CAKE—Three dozen eggs went into this cake, but Robert B. Meyner (left), governor of New Jersey, finds a few more symbolized on Miss EGGtober's apron. Adele Leonard, 21-year-old 4-H club member from Livingston, N.J., made a special EGGtober presentation of the cake to the governor at the 103-year-old Flemington (N.J.) Agricultural Fair recently. Phillip Alampi, state secretary of agriculture, was also on hand to launch "America's Extra Egg Month" in New Jersey. (Photo courtesy of Chas. Pfizer & Co., Inc.)

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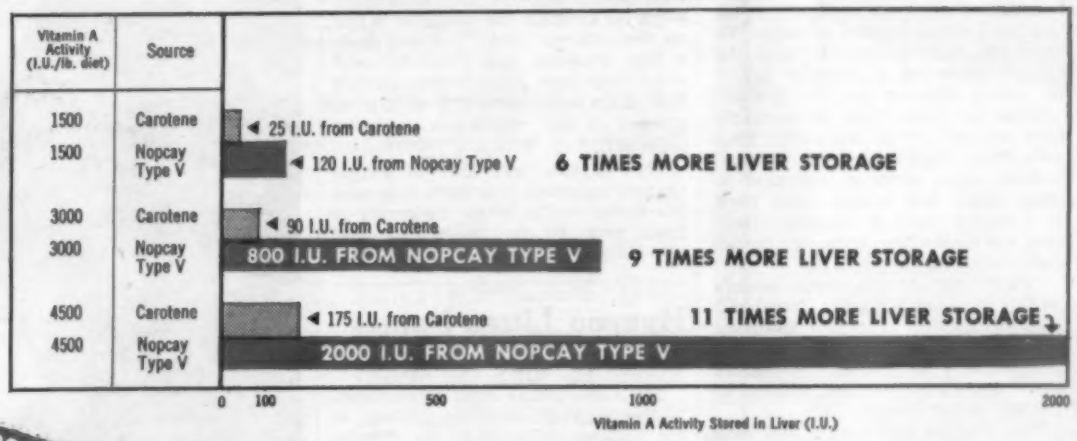

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	1000	7600	1.0*	
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Feed Store Works on 50-50 Basis with Egg Producers

By Jess Blair
Feedstuffs Special Writer

The Taylor's Farm Supply at Cartersville, Ga., has deviated slightly from the usual plan of contract feeding. Owners H. A. Taylor, Jr., and his father believe in fitting the contract to the conditions, and now have two types not commonly found.

With two farmers, the store owners are now working on a half-and-half basis. These two growers each keep 5,000 laying hens. They furnish the housing and cooling rooms, then pay half the cost of the baby chicks or started pullets. From then on they share the cost on feed and medication with the store.

When the hens start laying, their investment is taken out of profits until their part of expenses has been paid. From then on the profits are split evenly.

"It might look like they are doing all the work," said Mr. Taylor, "but this isn't true. We take the birds to the farm, furnish supervision, deliver feed and then pick up the eggs and market them. Against this, the farmer furnishes his labor in tending the flock. When the hens are through laying, we sell them and give the farm grower half the money."

Mr. Taylor says this plan has been about the same as paying the farmer a certain price per dozen as most integrators do. The main advantage, he thinks, is that the grower will do a better job of management if he is required to pay for half the birds, feed and medication. He will cooperate with the field supervisor more willingly and also come up with some labor-saving ideas of his own.

Another Plan

"We have another plan with one farmer," said Mr. Taylor, "in which he is paid a salary. He furnishes the house and litter and we foot the bills for the hens, feed, medication and hauling. For tending 5,200 hens, this man receives $100 a week. We went into this contract because the farmer preferred a straight salary to taking chances on the profits."

Thus far both types of contracts have worked out satisfactorily. Taylor's Farm Supply delivers all feed in bulk form, picks up the eggs in large cases and brings them back to a cooling room at the store. Here they are loaded onto large egg trucks and carried to Miami, Fla.

"There are several small dealers in this area who market together," said Mr. Taylor. "The feed company that supplies us with feed created the markets in Miami. Altogether these dealers keep about 600,000 to 700,000 laying hens."

The Taylors find that 15,000 hens have afforded a nice increase in sales. Outside of the money required in getting the first group of hens up to laying size, the main expense was a bulk delivery truck. A complete feed is bought from the manufacturer.

At this stage, the firm can either expand or reduce operations. At present they plan to hold what they have and wait for egg prices to change. Mr. Taylor says some dealers have over-expanded on contract feeding of laying hens and broilers without regard to the market. He wants to stay on firm ground and hold what he has until conditions warrant an enlargement program.

Taylor's Farm Supply at Cartersville, Ga. The owners sell poultry feed and supplies primarily but maintain a general business in feeds and farm supplies.

H. A. Taylor, Jr., sacking a small feed purchase for a customer. Mr. Taylor and his father have more than 15,000 laying hens and also cater to small poultrymen of the area.

Small Farmers, Too

In addition to the 15,000 hens, the Taylors also furnish feed and chick supplies to a lot of small flock owners. Many of these customers use sacked feed, but more and more of them are setting up bulk bins at the poultry houses. The store is encouraging them in this.

"We are not overlooking the small farmers of the area," said Mr. Taylor. "Thanks to several large industrial plants here, a lot of farmers work for salaries, but continue to live on their farms. Most of them keep a few chickens and livestock; and since they have more money than a few years ago, they are willing to spend it on feed, equipment and home supplies."

The Taylors find that in selling eggs at the store, they have increased the store traffic. Many customers in town drop by for fresh eggs and also buy garden seed, insecticides, lawn and garden fertilizer, and other items.

"I don't think the small feed dealer is necessarily on his way out," Mr. Taylor said. "He can also get into contract feeding, but he should not be like the frog that swelled up and up until he burst. Like us, he can wade out as deep as he likes. And usually he can sort of grow into it without having to borrow a fortune."

Hygeno Litter Names National Sales Agent

TOLEDO, OHIO—The appointment of the National Ideal Co., Toledo, as the national sales agent for Hygeno poultry litter, was announced recently by Zeno H. Hook, president, Hygeno Litter Co., Cairo, Ill., and W. L. Krapp, president, the National Ideal Co.

Mr. Krapp founded the National Ideal Co. in 1920, and is now in his 40th year as president.

HONEGGER DEALERS

FAIRBURY, ILL. — The following dealers have announced they will handle the complete line of products manufactured by Honeggers' & Co., Inc., including livestock and poultry feeds, Honegger layers and farm buildings and equipment: On the Farm Feed Store, Clarksville, Iowa; West Brooklyn Elevator, Co-op, West Brooklyn, Ill.; Hendrich Feed Service, Princeton, Mo., and Benner Feed & Farm Service, Manlius, Ill.

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Only economically priced electro-permanent magnetic vibratory feeders fully acceptable by Mill Mutual Fire Prevention Bureau.

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Write for information telling you how to select the feeder for your exact application, etc.

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Remind him to order Morton T-M Salt. See page 35.

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Closer Production-Marketing Coordination in Midwest Is 'Must,' Feed Manufacturer Says

Closer coordination between production and marketing in the north central part of the United States must be made or the loss of markets and production to other sections of the country will increase, was the view expressed recently by K. F. Dennison, north central region sales manager for General Mills' feed division.

Speaking before feed dealers in a series of meetings in Freeport, Ill., Rhinelander, Wis., Mason City, Iowa, and the Minnesota cities of Rochester, Brainerd, and Redwood Falls, Mr. Dennison stated, "The more we try to bury our heads in the sand, the more of our markets we will lose and the more of our production will be lost to other sections of the country where they are going ahead with new and more efficient programs.

"It is not important whether we call this integration, contract farming or controlled production. What is important is the fact that we recognize that we are moving in this direction faster than some seem to recognize—and this trend will continue to a still greater degree."

He pointed out that if we are going to have "contract production," anybody can be the contractor—if he will adopt certain principles and, then, have the know-how and ability to put a program over.

Basic Questions

"Any contract production program must be based upon sound economics," Mr. Dennison stated. "Any program to be adjudged sound may be able to give a positive, affirmative answer to one or more of these questions:

"1. Will it result in a **better** product to the consumer?

"2. Will it result in a **better buy** for the consumer?

"3. Will it **lower the cost** of the product?

"4. Will it result in **better marketing** and distribution?

"5. Will it give a **fair return** to all essential people in the program?"

In explaining that there is no one "right way" for all contract production, nor that one particular segment of the food industry will bring it about, Mr. Dennison said that he believed the feed manufacturer has just as much opportunity to get "into the act" as anyone else. "I think some have better opportunities to make a success of it than others," he added.

"I feel contract production, through informal working arrangements, may well offer the soundest and most versatile approach," he said, "provided someone along the line ties it all into a package which features a brand name to the consumer."

Mr. Dennison concluded his remarks by stating: "We had better be alert to the needs and desires of the markets, and actively develop and participate in programs to properly serve these markets (or end product customers) or we will one day find ourselves with a greatly shrunken feed potential and millions of dollars of annual income lost from each state in this section of the country."

Also speaking at the series of meetings were H. L. Witz, assistant director of General Mills' Larro research farm, and W. W. Woodward, advertising manager of the company's feed division.

CHICKS FOR SUPPLY FLOCKS DOWN

WASHINGTON—August's indicated domestic placement of pullet chicks for broiler hatchery supply flocks by leading primary breeders was 31% less than for the same month last year, the U.S. Department of Agriculture reported this week. Indicated placements during August, 1959, amounted to 1,706,000 chicks, while for August, 1958, the figure was 2,486,000.

Total placements for broiler hatchery supply flocks (domestic plus exports) were 1,834,000 as compared with 2,668,000 a year earlier.

This year's domestic placements have been less than those of corresponding months in 1958 since April. Expressed in per cent of 1958 figures, 1959 placements by months have been: January, 102%; February, 104%; March, 107%; April, 110%; May, 81%; June, 74%; July, 79%, and August, 69%.

The primary breeders included in the USDA report account for a very large percentage of total supply of replacement pullets for broiler hatchery supply flocks. Sales of replacement pullets by these breeders provide an indication of the potential number of pullets available for addition to hatchery egg supply flocks several months before the pullets will actually move into the flocks.

Barge Firm Started

AUGUSTA, ARK. — The Augusta (Ark.) Barge Co. has been formed here to specialize in transportation of grains on inland waterways.

Murray Lockhart, Augusta, president, said the company owns, and will operate, two barges. He said the barges are 35 feet wide, 14 feet high and 195 feet long and have a grain capacity of 50,000 bu. per trip.

Vance Thompson, McCroy, and Frank E. Woods, Clarendon, are board members. John D. Eldridge, Augusta, is secretary of the company.

Mr. Lockhart said the principal cargoes for the barges will be soybeans and other grain. He said the craft may be leased for use on some of the nation's inland waterways.

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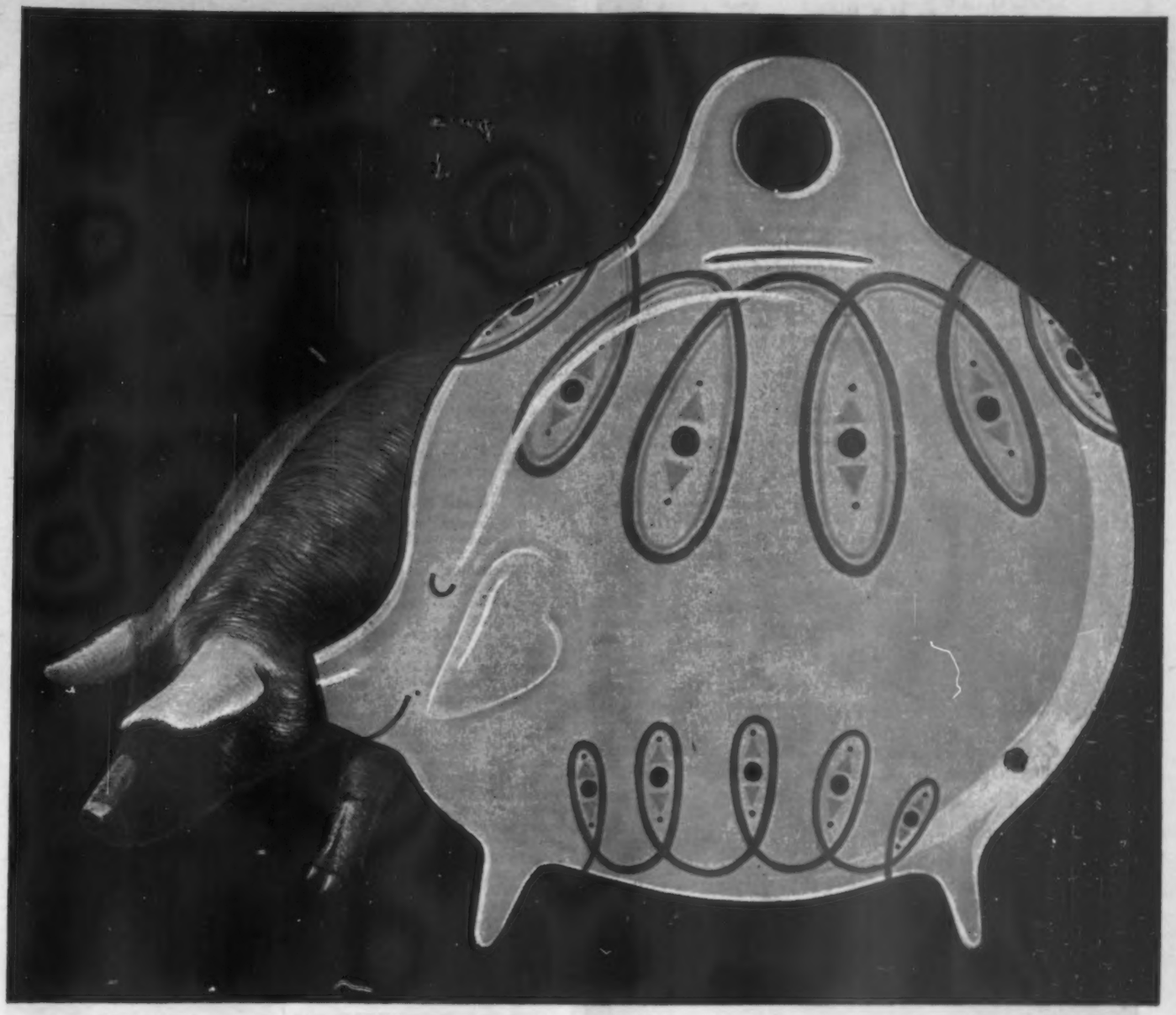

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Improvement Program Enables Mill to Provide Better Service

By Al P. Nelson
Feedstuffs Special Writer

A mill improvement program over a period of a year and a half has given the Klemme (Iowa) Cooperative Grain Co. a better opportunity to serve its customers more efficiently through an expansion of production facilities.

Some time ago the firm erected a grain storage building for storing government grain. The structure is 60 by 160 ft. and holds 165,000 bu. of the firm's total 382,000 bu. capacity. The new building is equipped with Force-Aire fans for aeration of grain.

This year the firm remodeled the mill to provide for the installation of a second Jacobson hammermill, 125 h.p. with 50 h.p. fan. Recently, too, the firm installed a California pellet mill which has enabled the company to produce hog, cattle and poultry pellets. The firm is experimenting with hay pelleting, and also does some custom pelleting. The rate on custom work is twice the 5¢ mixing rate.

The Roskamp Huller and Roller units. The firm does a considerable amount of oats hulling and rolling.

Other equipment in this mill includes: 1½-ton Haines mixer for making minerals and small batches of feed; 2-ton Strong-Scott mixer for pellets and crumbles; 2-ton Strong-Scott mixer for general feeds (the latter horizontal mixer is located over the bulk load-out area); Jacobson 100 h.p. hammermill (a second Jacobson is being installed).

The firm also has two Arid-Aire grain driers, two bulk feed trucks, one a 4-ton capacity Highway Equipment, the other a 6-ton capacity Chief. Both are auger type trucks.

A 60-ton Howe scale does excellent service, as do Roskamp huller and roller units. The firm ships out a lot of hulled and rolled oats, according to George A. Netland, mill foreman.

The firm does a great deal of seed cleaning and treating. The cleaner is a Clipper and the treater is a Slurry. In this area farmers bring in a lot of soybeans, oats and grass seed to be cleaned, states Mr. Netland.

The firm also makes a line of Felco feeds, according to Felco formulas. The capacity of the mill is approximately 70-75 tons of feed daily.

The feed company has no corn sheller. Most of the corn in this area is shelled on the farm and then brought to the elevator. Corn which is put into the firm's grain bank is graded to a No. 2. The grain bank system is proving quite popular with a large number of grind and mix customers, states Mr. Netland.

About 75% of the feed produced at the mill goes in bulk to the farm area. Many farmers have auger wagon feeders; some have large feeders in which feed can be placed by the bulk truck. In other instances farmers store surplus bulk feeds in wooden bins or other wooden structures. A few customers have metal storage bins.

Exterior view of the Klemme elevator and mill. To the left of the two grain driers is a new addition built with the installation of a second Jacobson hammermill.

A $5 per ton cash discount is allowed on bulk feeds, provided the customer pays within 10 days of delivery.

Special Mailings

Marvin Lemke, manager, is now issuing a once-a-week postcard type mailing to approximately 500 farmers. This mailing lists several good formulas or specials for the farmers' consideration, and the mailings are bringing good results.

One of the first mailings had this preface: "Dear Friend and Patron: We would like to have the privilege to come into your home each week via the service of the U.S. postal department. Each week we hope to bring you news and views as seen here at your Cooperative Service Center.

"For the last several weeks we have heard much discussion concerning the profits derived from 20¢ eggs. It would appear that there is no profit at that level. However, one must continue to feed the best that he possibly can to minimize the loss.

"Many of you are starting your replacement flocks. We know from experience that you are always interested in your feed costs . . . "

Then followed a listing of a starter formula, including crumblizing which came to $74.70 per ton, including the farmers' grains.

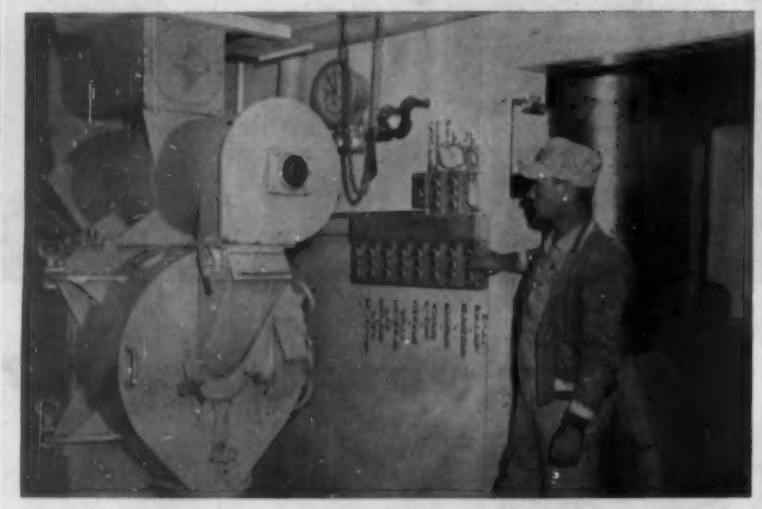
"How do these costs compare with what you are now using?" went on the copy. "May we be of help to you in formulating your rations? What can we do to be of more service to you?"

In another direct mailing last December, the firm stressed its "Operation Free Turkey" where every farmer purchasing a ton of feed before Dec. 24, exclusive of grain in complete feed mixes, was eligible to receive a free turkey.

Another effective promotion which has been used annually to sell feed and other farm supplies is the firm's Silver Dollar Day. The February event draws many farmers. They receive a bright new silver dollar for every ton of feed or fertilizer, or bag of alfalfa seed bought and paid for that day. Sandwiches and coffee are also dispensed to customers on Silver Dollar Day, and the event is widely advertised. Mr. Lemke states that this merchandising event helps swell sales totals considerably on that particular day.

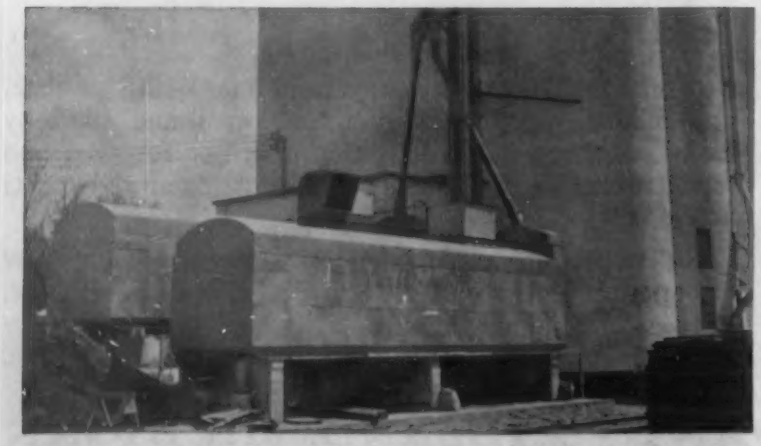
Klemme Cooperative Grain Co. is not missing any bets on farm supply store sales either. A 20 by 25 ft. section adjacent to the office is devoted to a display of farm supply items such as poultry and livestock remedies, poultry equipment and other items. Many farmers buy on "impulse" when they see so many needed items shown so well.

An excellent price board, too, is

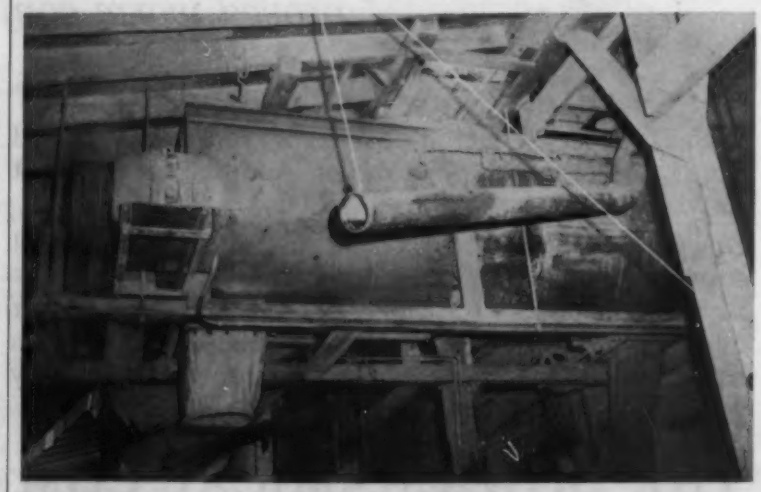


George Netland, mill foreman, is ready to start the new California pellet mill in the Klemme plant.

This two-way conveyor can take sacked feed up to the second floor and then convey bags down again when needed. This picture was taken from the second floor.



Two Arid-Aire grain driers are used at the Klemme plant. A grain bank is part of the organization's operations.



This 2-ton Strong-Scott horizontal mixer is mounted over the bulk load-out area, and feed is discharged in bulk from the mixer.

Employees are saved time when farmers can scan this easy-to-read price board in the Klemme plant.

Here are load-out spouts from various bins. This is in the sheltered areaway of the mill.

maintained, so that farmers can easily check on prices of the various feeds and other products the firm sells.

Operating with 20 employees, the firm also sells dry and liquid fertilizer, and does some custom weed spraying. One truck is equipped with a liquid fertilizer supply tank and 30 ft. boom.

With a variety of services for farmers and a new and modern mill capable of pelleting, grinding and mixing, etc. Mr. Lemke feels the organization is in an excellent position to develop the potential of the area.

Grain Inspections Hit a Record High

WASHINGTON — Record official grain inspections were made last year, according to recent tabulations by the Agricultural Marketing Service, U.S. Department of Agriculture.

The records are in both number of inspections and quantity of grain. In the year ended July 1, 1959, 3.5 million inspections were made, compared with 3 million made the year before and the 2.4 million average for the previous 10 years.

The quantity of grain inspected was about 6.4 billion bu., compared with 5.8 billion for the year before and the 4.6 billion average for the previous 10 years.

The inspection service is administered by the AMS grain division. Inspections are made under the authority of the U.S. Grain Standards Act by inspectors licensed by and under the supervision of USDA. Inspectors are employed by official state organizations, trade associations and independent inspectors operating their own agencies.

New Poultry Plant

DOUGLAS, GA. — Blueprints for plans and specifications for a new $100,000 Crider Poultry Processing Co. plant have been mailed to prospective construction bidders to obtain bids for building the new facilities, W. A. Crider, of the poultry firm, reported.

Squibb Files Petition For Injected Growth Stimulator for Cattle

WASHINGTON — E. R. Squibb & Sons, New Brunswick, N.J., recently filed a petition with the Food and Drug Administration proposing issuance of a regulation covering a new product to be injected in beef cattle as a growth stimulator and finisher.

The product, called Rapi-Gain, is an estrogenic growth promoter containing testosterone enanthate, 17a-hydroxy-progesterone caproate, and estradiol valerate.

The petition asked for issuance under the food additives law of a regulation establishing a zero tolerance for the drugs in the edible portions of cattle. The drugs, incorporated into a paste, are subcutaneously injected.

Labeling instructions are expected to specify that use of the product be stopped within a certain period before slaughter so that there will be no residues in the edible portions of the animals.

Named to New Port In International Unit

ST. LOUIS — Dietrich Rosenberg, manager of the Ralston Purina Co.'s plant at Encrucijada, Venezuela, has been named vice president of the company's international division in charge of operations in Venezuela and Colombia, according to an announcement made in St. Louis by the Purina international division president, R. Hal Dean.

Mr. Rosenberg will remain as manager of the Venezuela plant. He will report directly to Mr. Dean.

Announced at the same time was the appointment of W. J. Huffman, general sales manager of the international division, to vice president of the international division in charge of sales. He will move his headquarters from Mexico City to the company's general offices in St. Louis.

Louis A. Bates has been appointed manager of the international agricultural development department. In this capacity he will keep in close touch with agricultural developments throughout the areas, with particular interest in the development of grain crops useful as ingredients in feeds. He will headquarter at Mexico City.

Arsanilic Acid Added To G.L.F. Poultry Feed

ITHACA, N.Y.—Arsanilic acid has been added to the Cooperative G.L.F. Exchange, Inc., 1960 line of poultry feeds, according to a recent issue of G.L.F. Week.

G.L.F. Week says arsanilic acid has been added to Super Laying Mash, Breeder Mash, All Mash Laying Ration and All Mash Breeder Ration.

Stan Smith, in his "The Mill Stream" column, says arsanilic acid is "an aid in improving production, feed efficiency and livability."

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Another 1500 bu. per hr. in 1958

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100-859

JOE BROOKS

BY AL P. NELSON

Extra Services Are Important

The fall night was cool when Joe Brooks' employees convened at the mill for a sales training meeting. This gathering followed the usual steak dinner at the Hotel Manitou at Joe's expense. Joe always felt that such expense was warranted, because he had gotten his men into the habit of thinking of cost cutting, customer relations and business building ideas. He knew that if he didn't have such meetings, his men would have left such afore-mentioned duties to him alone. And Joe knew he had gotten some mighty fine business ideas from his employees over the years. He also knew that he had succeeded in making them aware that their pay incentive plan depended on each man doing his best to increase the net profit.

"Our custom spray man, Jim Hamilton, has had a very successful season," Joe announced, "and I have asked Jim to tell us something about his work. The season is just about ending, but we can learn a lot and be prepared for next year. We should all know what Jim's duties and troubles are, and what rates we charge for custom work. Jim, take over."

Jim Hamilton, a tall, lean fellow with unruly brown hair and a warm friendly smile, coughed and acted a little embarrassed. "Well, there are two things that are nice about my job. One is my monthly pay check and the other is all the lunches I have had at farm homes. If I do a good job, the farmers always invite me in for somethin' to eat, and man, those women sure can cook. Only I ain't the kind of a fellow who gets fat, no matter how much I eat."

"How about the farm girls?" asked Milt. "Are they gettin' better lookin' all the time? And remember, I have first claim on red heads."

"Joe!" burst forth red-faced Pop Henley, "are you going to let this girl-crazy nincompoop disturb another sales trainin' meetin' with his silly talk about women. If I was boss I'd fire him fast."

"Pop," kidded Milt, "are you so old you can't remember when you were young? Don't you ever look at women —even pretty widows your own age or close to it?"

Purple-faced, Pop got up. "I'm goin' home, Joe. I refuse to waste time in a gabfest like this."

"Milt!" cautioned Joe. "If you mention women again tonight, you'll be docked five dollars next payday. Pop is right. This is a business meeting."

Milt subsided like a spanked school child, and Pop sat down again, a satisfied smirk on his face.

"Proceed!" Joe told Jim Hamilton.

Jim coughed again. "Well, I've found out farmers are sure different sometimes. Joe provides a free grub sprayer on a trailer for them, if they come and get it. But do they? Only a few of them. The rest tell me to bring the sprayer out and cattle spray for grubs at 15¢ a head. They are too busy to do it themselves. I have found that if you do a good job like that the farmer shunts off all those jobs to a custom man."

"Do we make money at 15¢ a head?" asked Butterball. "It's a lot of work."

"Well, we sell them the cattle spray, too."

Everyone laughed at that.

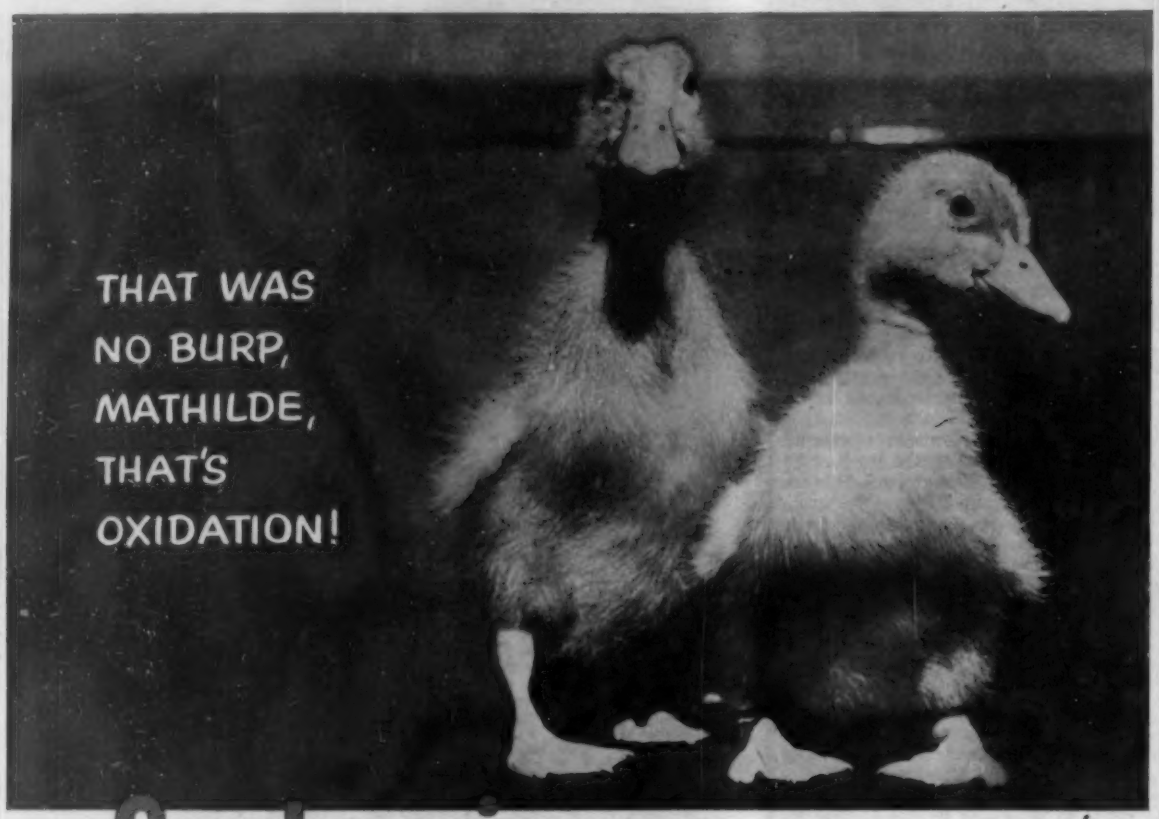
"Modern farming is big business today," Jim said. "Farmer has too darn much to do to waste time on small jobs that have to be done. Take barn whitening. I do a lot of it. Costs a farmer about $12 to $15 for whitening a dairy barn. But it makes a barn look nice and helps sanitize it. Only takes me about a half hour to whiten a dairy barn. The farmers sometimes kick at the price, saying it's high pay."

"What do you tell them?" Pop Henley asked.

"Well," grinned Hamilton, "I tell them the sprayer costs over $500 and the trailer extra. Then I have to haul the thing out by truck, and there is my time, too. They get to thinkin' and allow the barn charge isn't so high."

Milt looked thoughtful. "Jim, how can we help you sell more barn jobs?"

"Well, when dairy farmers come in here for feed, or when Hank Gleason delivers feed to them, he can tell farmers we have this barn whitening



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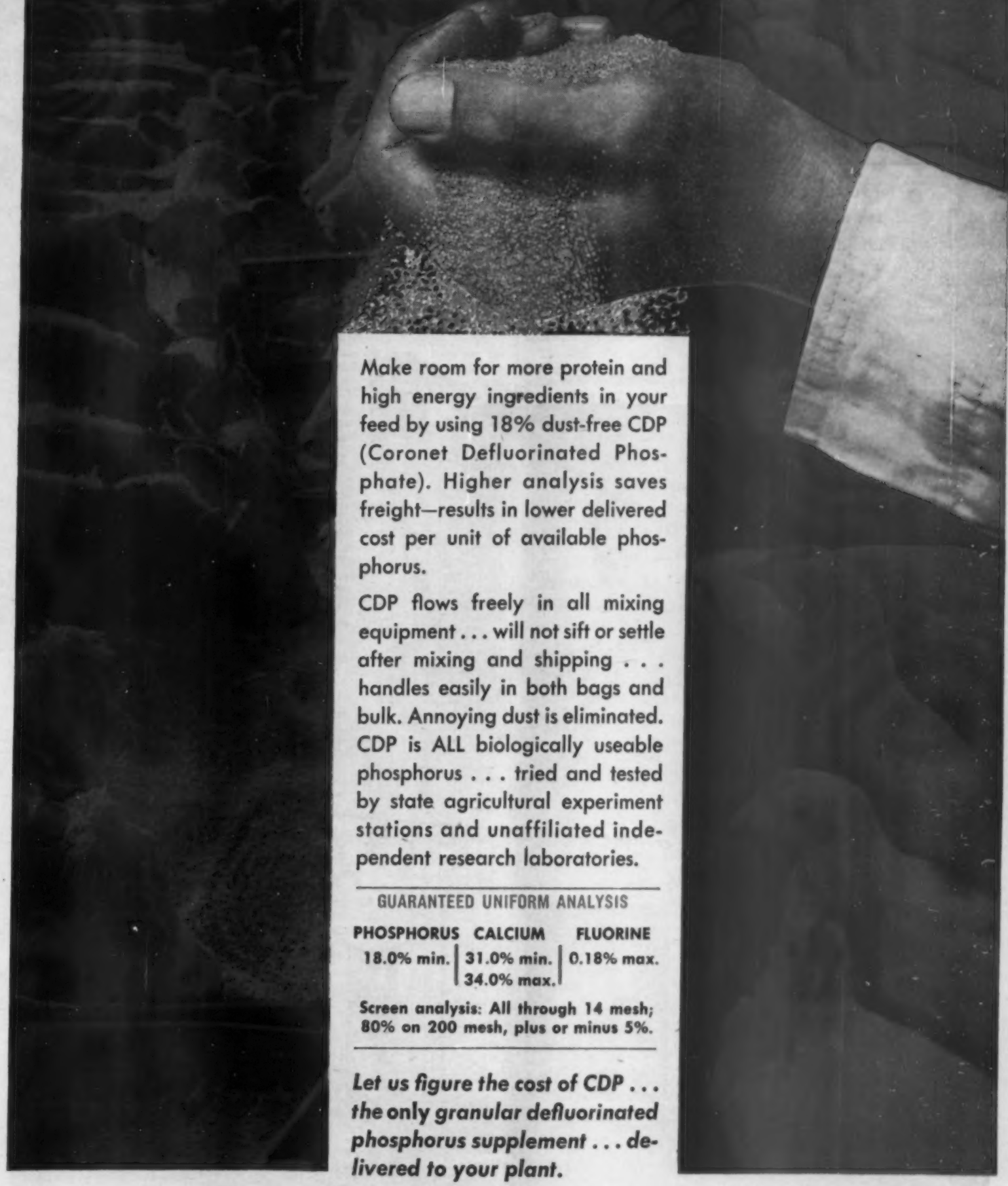

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service. Remind the farmers and they will order it."

"Do you ever get a chance to sell feed on these calls?" asked Smiley.

"I certainly do," grunted Hamilton. "Remember, if you guys sell more feed I profit on the pay incentive, too. I sit and listen to all the talk on feeding at these training meetings. I'm not sleepin'. I'm soakin' up information and I pass it on to farmers."

"Well, don't get mad about it," Smiley said. "I was just askin'."

Hamilton chuckled. "I don't sell any $100 orders like you guys, but I'm contactin' the farmers all the time and I funnel back feed and other tips to Joe. But I always figure I have an advantage over you fellows at the mill."

"How's that?" Milt asked.

"I'm on the farm most of the time. I can see what the farmer needs and suggest it. If I see a lot of flies in summer and fall I can suggest barn spraying at about $15. If I see he has alfalfa growing, I can suggest spraying for alfalfa weevil. On clover it's the spittle bug to watch. I can tell the farmer which spray will do the job. They like to listen to a fellow, especially when neighbors have had the jobs done, too."

At this point Joe broke in. "I think that Jim is right. It is easier to sell the farmer right on his own premises when you can see what he needs. Tell the boys about weed spraying, too, Jim."

"Well, I really go to town on that deal," Jim smiled. "I've got a 36 ft. boom for weed spraying which means

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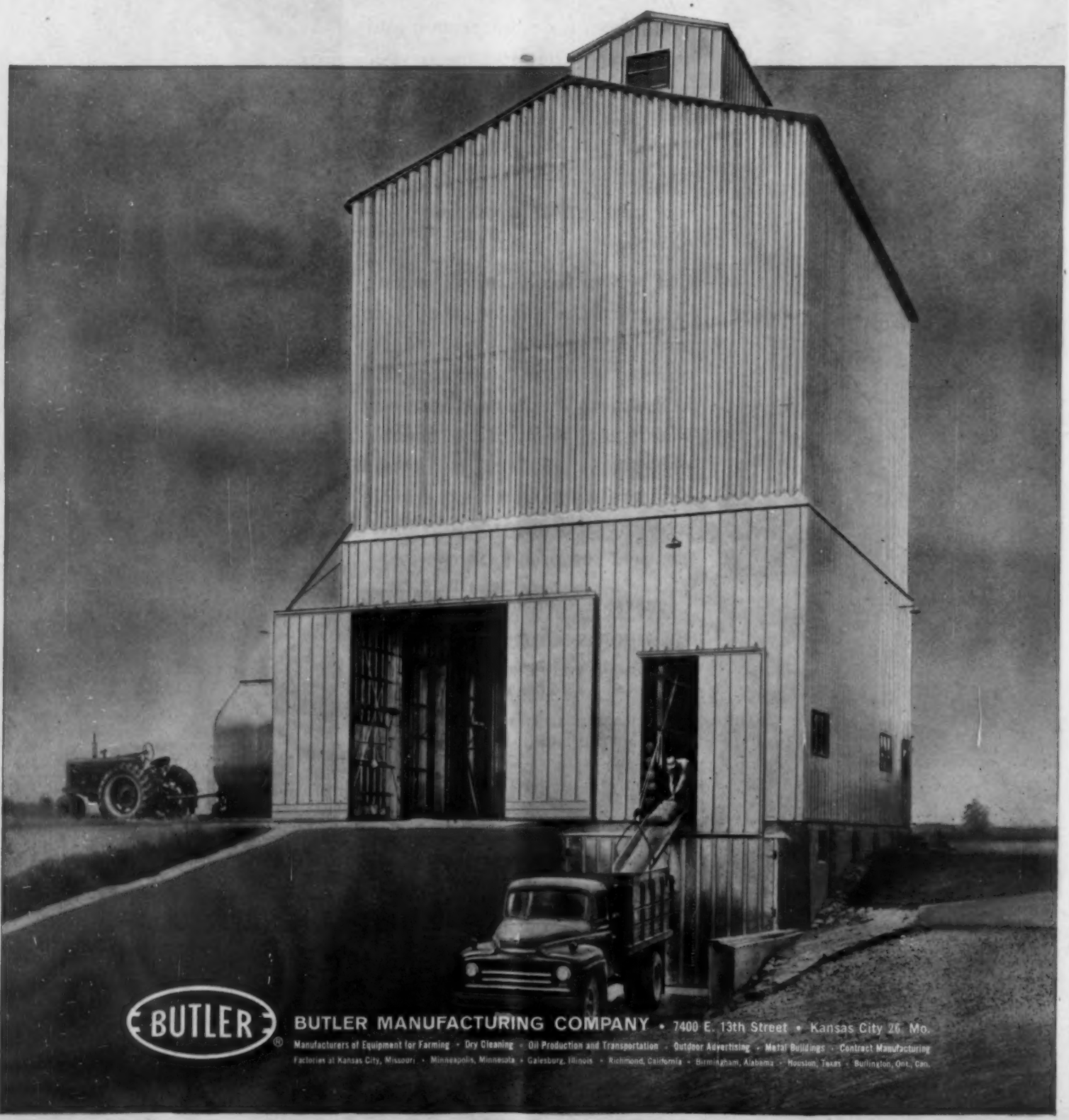

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I can really take a big swath in a field. I can spray 12 acres in 45 minutes with that deal."

"On weeds we charge $2.50 an acre for spray time and material, don't we?" asked Smiley Johnson.

"Right," said Jim. "It oughta be more, but it's all the traffic will bear."

"We have sold an awful lot of weed killers the last few years because we have an applicating service," Joe said. "Our farmers just don't seem to like to do the job themselves."

"Our ads help, too," Jim said. "Many farmers have told me they got the weed spray ideas from reading our ads in the newspaper and in our monthly bulletins."

"Fine," smiled Joe. "I'm always happy to get concrete evidence on the pulling power of advertising."

"There is only one other feed dealer in our area who is doing barn spraying, and weed spraying and grass spraying," put in Hamilton, "and we've sort of got the field to ourselves, so to speak. Why, I've got some customers who say 'Come back next year and spray for weeds for me'."

After Jim told of his spraying experiences, the rest of the employees asked many questions. Joe emphasized that the spray service was profitable, due to materials sold with it. He also stressed the fact that the spray service gave his company another opportunity to serve farmers and to contact them.

"The modern farmer expects more from a feed dealer than just the feed," said Joe. "He also likes his dealer to handle many related farm supplies and services. And it's wise and profitable for us to give him many of these extra services, especially when we can make a profit on them."

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Alabama Poultry Men To Convene June 14-15

MONTGOMERY, ALA.—Dates for the 1960 Alabama Poultry Industry Assn. convention have been set for June 14-15 and will be held in the Municipal Auditorium in Birmingham. The 1960 convention will run two days instead of three days as has been the custom in the past.

There will be some 100 commercial exhibit spaces available for the 1960 show. Other attractions will include the crowning of the 1960 APIA Poultry Queen at the annual banquet on Wednesday evening.

The Alabama Poultry Industry Assn. is made up of six affiliated associations: Alabama Hatchery Assn., Alabama Feed Assn., Alabama Poultry Assn., Alabama Egg Assn., Alabama Poultry Producers Assn. and the Alabama Turkey Assn. Two officers from each of the above six affiliated associations are elected to the overall APIA board of directors.

Officers of the Alabama Poultry Industry Assn. for the 1959-60 year are: Merlin Bryant, Brundidge, president; John Livingston, Albertville, first vice president; J. C. Woodard, Birmingham, second vice president, and W. L. Walsh, Montgomery, executive secretary-treasurer. Charles C. Miller, Jr., Piedmont, retiring president, remains on the executive committee.

Smith-Douglass Co. Provides Scholarships

NORFOLK, VA.—In the past five years, the college scholarship program of the Smith-Douglass Co., Inc., has continued to grow, and grants are now provided at colleges stretching from South Carolina to Minnesota, according to Ralph B. Douglass, chairman of the board.

Mr. Douglass noted that the program has helped 209 students studying agricultural subjects. The grants, most of them for $1,000, allow four years of study at 11 colleges and universities. The company supplies the funds, and FFA, 4-H or college officials select the recipients.

In commenting on the program, Mr. Douglass noted the rapid increase in the technology of agriculture and cited the need for more trained manpower.

Since the program was started in 1954, some $192,000 has been used or reserved for present scholarships. The schools at which scholarships are granted are the universities of Illinois, Iowa, Minnesota, Purdue, Wisconsin, Clemson College, North Carolina State College, North Carolina Agricultural & Technical College, Virginia Polytechnic Institute, Virginia Military Institute and Virginia State Teachers College.

One of the divisions of Smith-Douglass—the chemical division, supplies CDP and Dikal phosphorus feed supplements for the feed industry.

North Dakota Gets Aid For Lamb Feeding Test

FARGO, N.D.—Armour & Co. is aiding the North Dakota Agricultural Experiment Station in initiating a full-scale lamb feeding experiment.

A reimbursible grant from Armour & Co. provides lambs, feed, additives and a cash grant to cover record keeping and other incidental expenses for an experiment to test the effects of derivatives of estrogenic substances (hormones) on both ewe and wether lambs.

Researchers will study the effect of the different additives on rate of gain, carcass quality and feed conversion. Also to be observed are the effects of the estrogenic substances occurring normally in the feeds, and estrogenic responsiveness of the lambs by sex and season.

Some breeds of sheep breed readily at any time of year, while others breed only seasonally. The latter type will be used in the experiment, and the tests, involving 144 lambs at each trial, half ewes and half wethers, will be run twice. One will be run in the fall when mating activity is normally high, and one in the spring when it is low, to determine the effects of the additives on the ewe lambs.

The animals will be fed corn or barley, alfalfa hay and soybean oilmeal, plus the different additives. The feed will be analyzed to determine the amounts of estrogenic substances occurring normally in it.

At the close of the trials, the lambs will be sold to Armour, and carcass analysis will be done in the Armour laboratories.

The research will be done in the experiment station's new animal research center, with Merle R. Light, associate animal husbandman, in charge.

Research with Twin Heifers Described

ANKENY, IOWA—Several hundred Iowa dairymen inspected a herd composed of 48 pairs of identical twin Holstein heifers at the recent Iowa Cow Conference held here by Iowa State University.

A. E. Freeman, dairy cattle breeding researcher, said this herd, started in December, 1955, has been on the experimental programs long enough now to permit some preliminary statements about findings of the researchers.

He said that of each four pairs of twins arriving at the farm, one pair is placed on a high-grain ration, one on a low-grain ration and the other two pairs are split between the two rations, one member of each pair going on the "high" ration and the other on the "low."

By the time the animals are 21 months of age the "high" ration group weighs about 150 lb. more than the "low" group, but the differences are mainly in fleshing and not in bone growth. The "high" group averages only 1.4 in. taller at the withers than the "low" group. And the differences between growth rates of identical sisters on different rations are about the same from pair to pair. Heifers which grow faster on the "high" ration than the other "high"-ration calves do, generally have an identical twin sister growing about as much faster on the "low" ration than the other "low-ration" heifers. Prof. Freeman said this bears on the answer to one of the questions the researchers set out to answer: Does breeding that is good for a given environment prove to be good for a less favorable environment? Superior breeding for weight gains, he said, appears to be about as superior in an environment that is poor in available feed as it would be in the environment rich in available feed.

Prof. Freeman said the success of the experimental work requires the addition of 16 pairs of identical twins each year.

Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

Studies on the Effect of Quantity and Type of Fat on Chick Growth

● R. Dam, R. M. Leach, Jr., T. S. Nelson, L. C. Norris and F. W. Hill, Cornell University; The Journal of Nutrition, Vol. 68, No. 44, pp. 615-632, Aug. 10, 1959.

ABSTRACT

In all, eight experiments were conducted to determine the growth promoting effects of various fats both in purified diets and practical rations, during 4 week trials. Duplicate lots were used for each treatment in all experiments, except No. 2, in which triplicate lots were used.

The results of the first three experiments showed that either 5 or 10% corn oil produced incremental growth responses over the unsupplemented basal diet or the basal diet supplemented with unidentified growth factors. The addition of further amounts of corn oil (20%) did not increase growth except in one experiment when the unsupplemented diet was fed. In all cases, increases of fat content improved feed efficiency.

No evidence was obtained in these experiments that the higher energy basal diet was more suitable for use in studies of unidentified growth factors, although improved growth was evident at all levels of corn oil and energy content with the sources of unidentified growth factors. This growth was not due to inorganic factors such as zinc or potassium nor was it due to total protein dietary differences or differences in energy-protein ratios. The growth response of corn oil additions was confirmed with the purified diet in experiment 4 and with a practical type ration in experiment 5.

Experiments 6 and 7 were undertaken to determine if soybean oil, cottonseed oil, peanut oil, lard and hydrogenated cottonseed oil were approximately of equal value to corn oil in promoting chick growth. Corn oil, soybean oil and cottonseed oil were compared in trial 6, while corn oil, soybean oil, lard and hydrogenated vegetable oil were evaluated in trial 7. All fats were supplied in the diets at the 10% level, with energy-protein ratios maintained constant. Soybean oil, cottonseed oil and peanut oil were assumed to have approximately the same metabolizable energy content as corn oil, since actual values were lacking at the time this experiment was conducted.

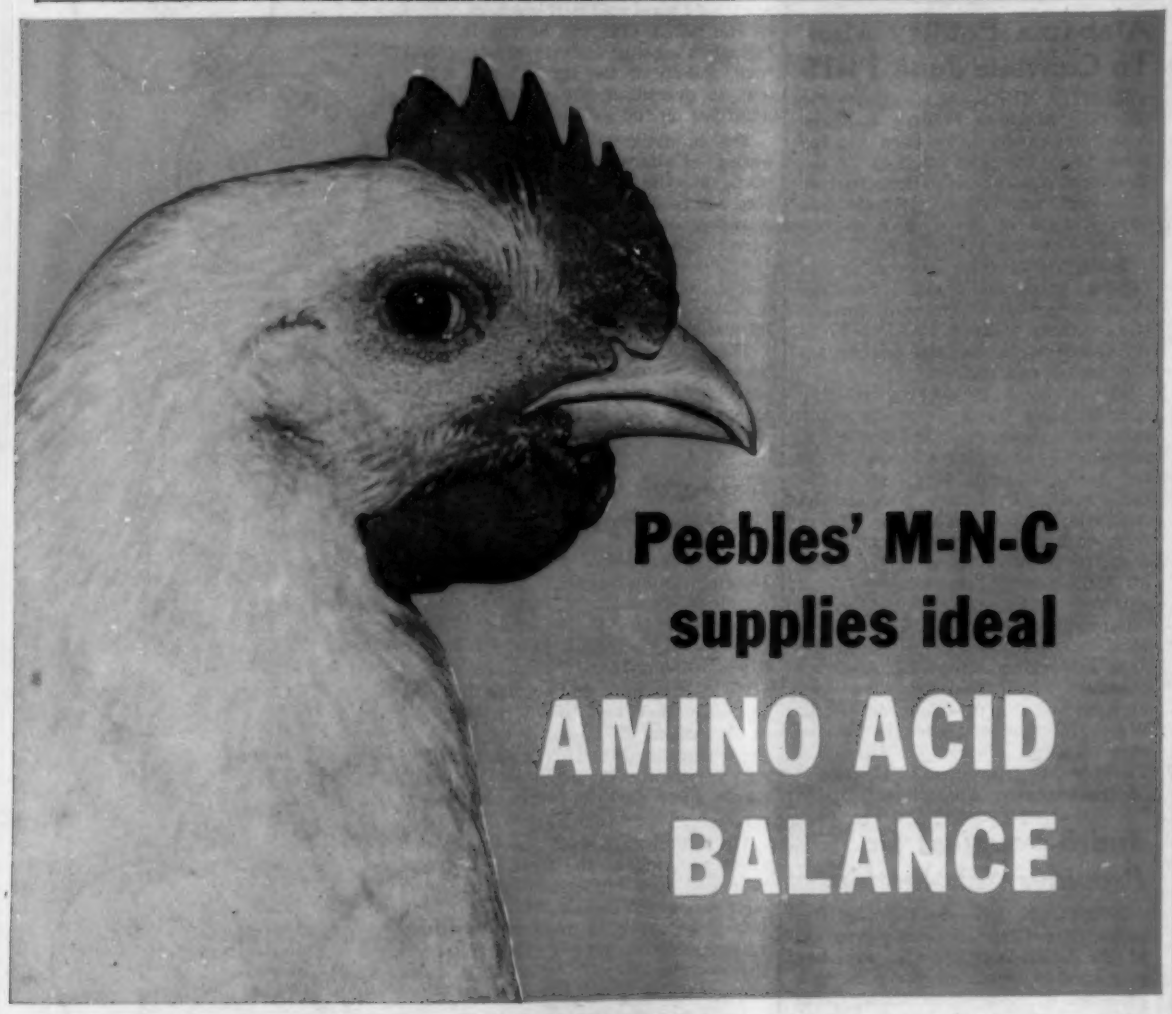
The results of trials 6 and 7 clearly show that all of the non-hydrogenated vegetable oils were of approximately equal value in promoting chick growth and improving feed efficiency, but that hydrogenated vegetable oil was much less effective. Lard, on the other hand, promoted growth equal to the non-hydrogenated vegetable oils in the absence of unidentified factors, but was intermediate between hydrogenated oil and the non-hydrogenated oils when the factors were supplied.

The improved growth obtained in these experiments by increasing the quantity of non-hydrogenated vegetable oil in the chick diet from 5 to 10% was not due to lack of capacity of the chicks to eat feed since those fed the practical type diet containing 7.5% of soybean oil attained approximately the same weight at 4 weeks as the chicks fed the purified diet containing 10% of corn oil and sources of unidentified factors by consuming approximately 100 grams more feed—it has been frequently observed previously in this laboratory that chicks fed practical diets attain comparable growth weights to those fed more concentrated purified diets—but at the expense of greater feed consumption.

In view of the favorable results by supplying 10% corn oil in the ration, an attempt was made to determine if the growth-promoting effect was due to the glyceride fraction or the most volatile fractions in experiment 8 by means of using a stripped corn oil and molecular distillates of corn oil. The results showed that the glyceride fraction promoted growth equal to that of corn oil in both types of diets with or without supplementation. No further growth was obtained when the most volatile fractions of the corn oil were added to the glyceride fraction.

COMMENT

This is a very interesting paper on work underway at Cornell for some time investigating the response of various fats in both purified and practical-type diets. Similar work has been recently reported by Illinois workers (Rand, Scott and Kummerow, 1958); (Scott, Amato and Bray,



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WOMAN MANAGER—Jerry Meath, Doughboy Industries, New Richmond, Wis., visits with Mrs. Alice Bertemes, elevator manager, during an open house held recently for the new concrete elevator at Taunton (Minn.) Cooperative Elevator Co. Mrs. Bertemes became manager of the elevator in 1945. Since that time earnings have increased from $4,000 a year to $62,000 a year. The new elevator, with a storage capacity of 220,000 bu., boosts the firm's total grain capacity to one half million bushels.

1958), and the results of the two groups are not very far apart.

With purified iso-caloric diets containing 0.5-1.0% corn oil, the Illinois group reported that the inclusion of 7.5 to 8.0% or more of corn oil promoted significant growth increases using the pair feeding technique. With non-iso-caloric diets, significant growth increases were obtained with 8.3% of corn oil both when fed ad lib and by the pair feeding method—with no further increases by the addition of 18.1 or 30.7% corn oil. The Illinois workers assumed that 0.5% of corn oil is sufficient to meet the dietary requirement of the chick for essential fatty acids, and therefore that growth effect was not due to such a deficiency.

The Cornell group discussed, but ruled out, the possibility based on experimental evidence, that the growth response was due to a more optimal concentration of energy unrelated to food capacity or that it was due to a lower "specific dynamic action" of the fat making more energy available for growth. Therefore, they feel that the growth effect is apparently caused by an unknown substance not removed by molecular distillation or by heretofore unrecognized growth promoting properties of some of the known components of the fat.

This paper also points up another very important point that all feed nutritionists should be well aware of —but, many seem to be neglecting. It is simply this—not all fats are of equal value, and the commonly accepted figure of 2900 productive calories for high quality fat (4000 metabolizable calories) is not true or valid for most feed formula calculations. This is simply because most feed companies are using feed grade tallows of much lower value—for example, recent Cornell work showed that soybean oil contains 4200 metabolizable energy calories, while feed grade tallow contained only 3230! Yet, many feed formulas are calculated on the basis of all fats being equal.

Recent papers presented at the last Poultry Science Assn. meeting (August, 1959) tend to show that metabolizable energy values for fats and other feed ingredients may vary widely depending upon the diet used and many other experimental factors. Therefore, many still stick to productive energy for poultry formula evaluations—instead of using 2900 calories for feed grade animal fats, wouldn't it be wiser and safer to use a value of approximately 2600-2700 calories in actual practice, well recognizing that higher or lower values exist for certain lots of material?

LONFOSCO Soft Phosphate with Colloidal Clay
Prepared by: Loncala Phosphate Co. High Springs, Fla.
Distributed by: Warren-Douglas Chemical Co.
1513-15-17 Burt St., Omaha, Neb.

Plant Now Operating

BETHLEHEM, GA. — A new processing plant with a capacity of 4,800 chickens an hour is being operated here by Harrison Poultry, Inc.

The plant, which was opened this summer, plans to control quality from hatching eggs to the last operation in the processing plant.

Present equipment includes a Barker continuous chiller and Johnson multi-matic picking machinery. There is room for installing ice making equipment and an additional evisceration line.

Harold Harrison is president, and Roy T. Withers, formerly with Swift & Co. for 24 years, is manager.

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You can destroy insects with Larvacide—the grain fumigant that answers all three of these big questions with a powerful "YES!"

Is it Safe for My Men?

YES! Your men will detect Larvacide . . . even in tiny amounts. No one willingly stays near when harmful quantities are in the air. This means your employees can do the fumigation safely, without delay—when it's convenient or urgent.

Is it Free from Tolerance?

YES! In fact, it's exempt. You're totally safe under the Miller Act. Some fumigants build up poisonous residues and often cause treated grain to be condemned and seized. But not Larvacide. Since its active ingredient is chloropicrin, it leaves no residue whatsoever. You have no risk of seizure due to residue buildup.

Is it Effective?

YES! Larvacide kills larvae and eggs as well as adult insects. And you use only a small quantity of fumigant. This high rate of insect kill helps Larvacide keep your grain from developing odors and spoiling in storage.

As with all active chemicals, follow full directions on the container and use proper safety precautions. Use the coupon to get more facts or to ask for a visit from your trained Larvacide serviceman.

Weevily grain discounted up to 45¢ per bushel

Insect infested grain can cost an elevator operator 7¢ to 45¢ per bushel, according to USDA figures.

Insects in the grain are sometimes hard to detect. Damage may be well along before it's noticed. All too often, it's the Commodity Credit inspector who finds it. And by that time, it may already have cost thousands of dollars.

This is a business risk you don't have to take. You can substantially reduce it with fumigation.

Modern fumigating practices permit you to put your grain under constant guard all through the storage period.

Best of all, fumigation is not expensive. It's low-cost insurance to assure profits in your business.

By storing only clean grain and fumigating to protect it from insect damage, you can assure yourself of high grades under the Clean Wheat Program.

It will help you make top profits, too.

Free fumigation help available

Your Larvacide serviceman is trained to help you master every type of grain fumigation problem. He can show you actual examples of solved storage problems which prove Larvacide's effectiveness, safety, and freedom from tolerance. Call on him frequently. If you don't know him, use the coupon below.

Application is easy . . . Use Larvacide equipment or your own

Now, you can make the fumigation job a simple, automatic operation. Your Larvacide distributor will help you.

He'll show you Larvacide treating equipment . . . and how the Larvacide engineering service fits it into each "customized" or "do-it-yourself" installation. He can show actual drawings of facilities like your own.

He'll also explain the 3 Larvacide fumigation systems and the recommended Larvacide formulation for each.

Application by Recirculation

This method is used in flat grain storage. A Larvacide piping system and recirculation ducts provide even distribution of Larvacide throughout the grain. Larvacide 85, aerosol, is the recommended formulation for this set-up.

Application in the Grainstream

You can fumigate when the grain is being turned or put into storage with this system. A Larvacide automatic grain stream applicator, using Larvacide 100, makes it a fast, easy job. After filling, keep the bin closed for several days to get good insect control.

Application to Grain Surface

If you have no aeration for bins or flat storage, you can apply Larvacide 15 directly on the surface of the grain. Take care to get even distribution. A Larvacide sprinkler system, spray nozzle, or even a sprinkling can may be used.

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Here's the way to get bonus

FOLLOW THESE STEPS:

Take your regular high-quality supplements

1 **Add Terramycin in quantities that supply 75 mg. per head per day.**

Here's the first part of the sales story: Enough extra gains to more than pay the cost of Terramycin . . . and these plus performances are free:

- Improved feed efficiency—8% increase
- Better bloom and condition
- Reduced bloat
- Reduced liver abscesses
- Less trouble with scours and secondary diseases.

One trial sold this beef feeder

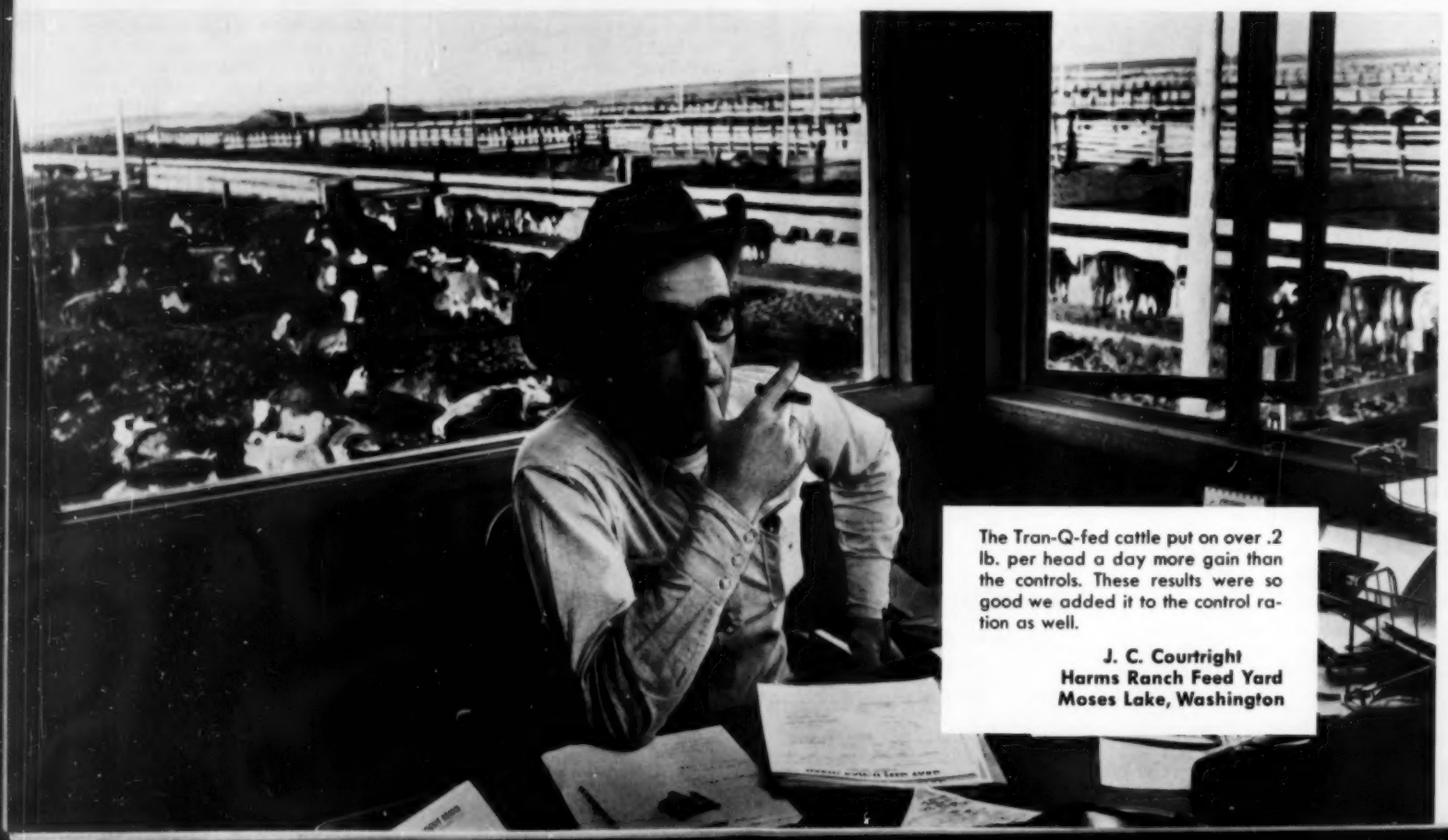
Mr. Courtright wanted to see what new TRAN-Q would do. He:

- put 300 head on his regular feed
- 400 on the same feed plus Tran-Q

and halfway through . . .

Now we're using Tran-Q and Terramycin with all our cattle on feed . . . 4,000 at the present time.

RESULTS WERE SO GOOD HE PUT ALL HIS CATTLE ON TRAN-Q



The Tran-Q-fed cattle put on over .2 lb. per head a day more gain than the controls. These results were so good we added it to the control ration as well.

J. C. Courtright
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beef feed sales right now

2 **Then add Tran-Q to the same ration.**

You'll be providing these additional sales appeals:

- Extra gains averaging 6% over and above those supplied by Terramycin.
- Greater feed efficiency averaging 4% in addition to the savings in feed from Terramycin.

3 **Then provide a separate disease-fighting Conditioning Feed containing 500 grams of Terramycin per ton.**

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- Get animals on feed faster.
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See your Pfizer representative for more information on the set of sales advantages Plus Performance Feeds containing Terramycin and Tran-Q can give you.

on the program

The extra performance showed up because we weigh all our cattle at 30-day intervals. The consistent increase convinced us we couldn't afford to feed without Tran-Q.

Terramycin has given us between .1 and .2 lb. extra gain a head per day. It's also helped cut down considerably on sickness.

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Benson Comments on Contract Farming

PEORIA, ILL.—Ezra Taft Benson, secretary of agriculture, had some comments on contract farming as part of a talk on farm problems and programs before the Peoria Advertising and Selling Club. Here is what the Secretary said:

"Contract farming is very extensive in the broiler industry and now is coming into use for hogs, beef cattle, eggs and other farm enterprises.

"We are watching these developments very closely. We do not think that contract farming will, or should be, extended to all of agriculture. But we do feel that it offers exciting possibilities for some segments of agriculture.

"Sound contract farming can promote production efficiency. It can spread the risks of enterprise among producers, processors and marketers. It can provide additional funds for farmers and open up new sources of credit. It can help young people to get started in farming.

"Contract farming can improve the orderliness of production and marketing. It can lead to better quality in products. Consumers want leaner pork, fresher eggs and more uniformity in farm products. Contract farming may help.

"This does not mean that contract farming will automatically work out to the benefit of farmers. If farmers are to use it to their own advantage, they will need adequate market information, adequate research information, adequate ground rules for conducting agricultural production by contract. In some areas they will need strong cooperatives.

"But above all, farmers will need to preserve their economic freedom. Contract farming, out of control of farmers, could put them in a straitjacket. That must not be."

Luncheon Starts EGGtober Campaign

WASHINGTON — Beth Benson, daughter of Ezra Taft Benson, secretary of agriculture, was presented with a "Happy Egg" apron by Miss EGGtober at a luncheon recently.

The apron was a souvenir of an all-egg luncheon especially prepared for the Benson family in the secretary's private dining room. Aprons were also presented to Mrs. Benson, daughters Beverly and Bonnie and Mrs. Reed Benson, daughter-in-law.

The luncheon marked the kickoff of the 1959 EGGtober campaign—a drive by agriculture, industry and other groups "to encourage poultry raisers to use scientifically blended poultry feeds as a means of cutting production costs and to boost egg consumption at the consumer level."

Chas. Pfizer & Co., Inc., launched the consumer end of the program by arranging for Miss EGGtober, Adele Leonard of Livingston, N.J., to serve as hostess at the luncheon. Miss EGGtober's message to the secretary pointed out that if every American family served that same meal just once during EGGtober, 3½ billion extra eggs would be consumed.

The luncheon will be followed by a consumer promotion this fall by the Poultry & Egg National Board and Chas. Pfizer & Co.

ALL-EGG LUNCHEON — Shown is Miss EGGtober, Adele Leonard, presenting a "Happy Egg" apron to Beth Benson, daughter of Ezra Taft Benson, at an all-egg luncheon prepared for the Benson family in the secretary's private dining room recently.

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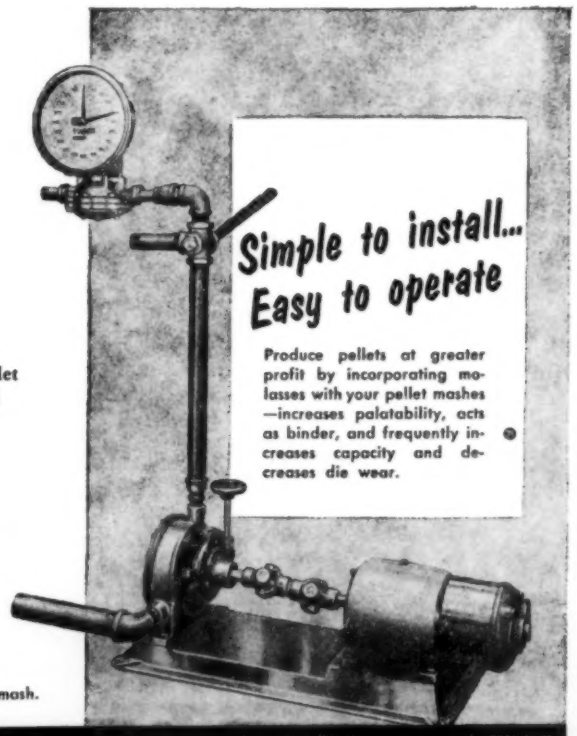

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Effects of High Calcium in the Diet

"Indiscriminate addition of calcium can lead to trouble for the feeder."

By Dr. George K. Davis
Florida Agricultural Experiment Station

All of our farm and laboratory animals have a need for calcium, which alone of all the mineral elements in the body makes up more than 1% of the total body composition. The vital role of this element in bone formation, tooth formation, heart regulation, blood clotting and lactation, not to mention many less spectacular if equally important functions, has justified the emphasis placed upon calcium in a feed and mineral formulation.

Many sources of calcium are inexpensive and animals have a tolerance for widely differing levels in the diet. This combination of circumstances has often led to the inclusion of "extra" calcium containing minerals in the feed. The results have not always been happy, but poor results have primarily been due to the neglect of the required balance between calcium and other ingredients of the diet. This balance has been most important in relation to the other mineral elements. In fact, any consideration of the effect of high calcium levels in the diet is equally a consideration of the balance between calcium and the other mineral elements in the diet.

Perhaps the best known of the interrelationships of calcium with other mineral elements is that existing with phosphorus. Experiments with most species have shown that maximum nutritional benefits have been secured when the ratio of calcium to phosphorus in the diet approximates 1.5:1. However, it is well known that if adequate amounts of phosphorus are included in the diet, then a wider ratio of calcium to phosphorus will give excellent results. Diets with a ratio of calcium to phosphorus as wide as 7:1 have given good results, but when this has been the case, phosphorus has been present at levels well above that which is considered a requirement level.

Poor Performance

In practical feeding trials, and in experimental programs, wide ratios of calcium to phosphorus with phosphorus maintained at a level near requirement have resulted in poor growth, depressed lactation and poor feed utilization. The known relationship between phosphorus and the utilization of carbohydrate and fat has suggested that when high levels of calcium prevent phosphorus utilization, this in turn reduces energy utilization or greatly limits feed efficiency.

Experiences in Florida accent this need for inclusion of adequate phosphorus where calcium levels are increased. Citrus products with the abundant calcium that makes them particularly valuable in dairy feeds have been especially poor supplements when fed to cattle on winter range that is low in phosphorus. Calcium added in the manufacturing process results in citrus pulp and citrus molasses with calcium values often exceeding 1%. Winter ranges in the Southeast frequently have phosphorus values on the order of 0.1% or less. With this combination of circumstances, weight losses in cattle on native pasture with citrus molasses offered free choice have frequently exceeded the losses experienced in cattle on native pasture with no supplemental feeding during the winter period. When phosphorus supplements have been made available to cattle under these circumstances, those cattle receiving the molasses will show some weight gain over the wintering period as opposed to weight loss in those animals receiving no citrus products as a supplement.

This growth depressing effect of high calcium with minimum phosphorus intake has been beautifully illustrated by a recent report from the Midwest in which addition of calcium to obtain a calcium to phosphorus ratio of 10 to 1 gave a sharp decrease in weight gains in Hereford heifers. The effect of a wide calcium to phosphorus ratio has been known for many years, and the mechanism has been fairly well worked out. Extra calcium probably causes a change in the pH of the intestinal tract, resulting in the precipitation of relatively insoluble tricalcium phosphate, thus preventing absorption and rendering phosphorus unavailable. When the level of phosphorus in the diet is near the margin of adequacy, high levels of calcium tend to precipitate the phosphorus and actually create a phosphorus deficiency. This deficiency may be marginal or severe, but in either event the low phosphorus intake reduces the ability of the animal to utilize energy sources—this of course results in poor feed efficiency and poor animal production.

Calcium and Zinc

Probably no discovery accented the importance of a balance between calcium and other elements or, if you will, the hazard of excess calcium more than did the finding that swine develop parakeratosis with increased calcium levels. The findings of the Alabama workers, that parakeratosis in swine could be produced on rations high in calcium, led to numerous experiments showing the importance of zinc in the nutrition of swine and of poultry. At the same time these experiments have demonstrated the importance of a balance between calcium and other mineral elements.

It is now well recognized that the zinc requirement of swine lies somewhere around 40 p.p.m. of the diet. Yet such a level will not protect swine from parakeratosis if the calcium level is increased to over 1% of a diet. On the other hand, addition of zinc in excess of the "requirement" will prevent the development of parakeratosis. These findings emphasize the need for a balance between calcium and zinc if swine are to receive adequate nutrition. These observations seem to carry some importance with respect to the nutrition of poultry as well, particularly with respect to growth and feathering, and again the balance of the elements in the diet appears to be the most important factor.

Manganese

It has been well known in both the nutrition of poultry and swine that high levels of calcium or of calcium and phosphorus in the diet will accentuate the need for manganese by these two species. The early work with swine showing a need for manganese in proper bone formation was carried out with diets very high in calcium and phosphorus. The early work with birds studying the causes of perosis again emphasized the relationship between high levels of calcium and the need for manganese for the prevention of perosis.

While it has been suggested that

Dr. George K. Davis

AUTHOR—Dr. George K. Davis is animal nutritionist at the Florida Agricultural Experiment Station and professor of nutrition at the University of Florida, Gainesville. He has been in charge of the nutrition laboratory at Florida since 1942. Dr. Davis received his B.S. degree in agricultural and biological chemistry at Pennsylvania State University in 1932. He received his Ph.D. from Cornell University in animal nutrition, with minors in pathology and physiology, in 1937. Following his graduate work, he was research assistant professor in chemistry at Michigan State University, working with the animal husbandry department on nutrition problems. He assumed his Florida post in 1942. Dr. Davis has done extensive nutrition work and is best known as an authority on trace element nutrition. He is the author or co-author of more than 125 scientific papers and is a member of the various scientific and honorary groups. He is a member of the animal nutrition committee of the National Research Council.

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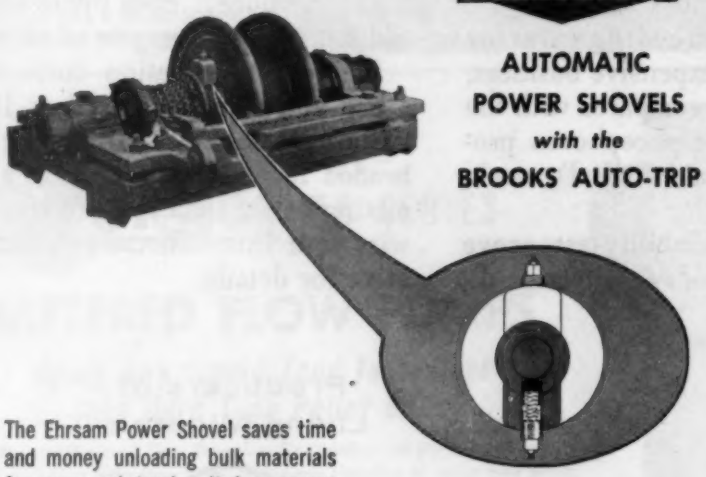

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insoluble compounds may be formed between calcium and manganese or that the added calcium results in insoluble or unavailable compounds of manganese being formed, the mechanism of the interaction between calcium and manganese is by no means clear. On the other hand, it has been well demonstrated that addition of extra manganese to diets high in calcium and phosphorus will serve to meet the manganese requirements for the prevention of perosis.

Iron is not ordinarily considered a likely deficiency in the diets of our farm animals, with the possible exception of baby pigs. Yet, it has been well demonstrated in laboratory animals that high levels of calcium with levels of iron that are just adequate, will result in impaired hemoglobin formation and the development of anemia. Again it is not clear what the interaction between calcium and iron is, but it is quite clear that additional iron in the diet will overcome this depressing effect of the high level of calcium.

Almost the same story can be repeated substituting the element iodine for the element iron. In those areas of the world which suffer from low iodine in the feed, additions of extra calcium will precipitate the development of goiter in animals that will not develop goiter if extra calcium is not added to the diet. The iodine requirements in these areas appear to be somewhat higher than in other goiter areas, but addition of extra iodine very adequately prevents the development of goiter. While there is reasonable evidence that calcium may prevent the absorption of iron and manganese and phosphorus, the evidence with respect to iodine is less clear. Work with experimental animals, at least, has demonstrated that the effect may be more directly upon the thyroid gland than upon absorption of iodine from the intestinal tract.

Due to Interaction

In the case of all of the mineral elements mentioned, addition of extra calcium to an otherwise adequate diet may precipitate a deficiency of the other essential elements, if the element is phosphorus or zinc or manganese or iron or iodine. In every case it is equally apparent that the injurious effect of the calcium appears to be due to an interaction rather than to a harmful effect of the calcium itself. In every instance, the addition of additional phosphorus or manganese or zinc or iron or iodine will overcome the adverse effect of the calcium and give responses equally as satisfactory as the reduction of the level of calcium in the diet.

There is always the possibility that other elements which have not yet been studied with respect to this relationship to calcium may respond in a similar fashion and any nutritionist who recommends increasing the calcium content of the diet of farm animals should be aware that the other mineral elements must be kept in balance if good response is to be obtained.

The effect of extra calcium on other ingredients in the diet does not appear to be quite so clear cut as in the case of the mineral elements. The report from New Hampshire that the addition of extra calcium to the diet of dairy cattle might result in poor utilization of protein and fat has caused some concern, and it is well to point out that the source of the protein may have a marked relationship to this effect of added calcium.

Adding a few additional p.p.m. of trace elements to balance added calcium may be an economical and satisfactory nutritional procedure. On the other hand, addition of extra protein to balance extra calcium may be unjustified from a financial standpoint and the nutritional loss due to failure to increase protein levels may be very serious indeed. However, it should be pointed out that workers at Illinois obtained excellent results with added calcium when alfalfa made up the source of protein. While it is far from clear what the relationship is between calcium and protein utilization, it does seem equally plain that the relationship between added calcium and the protein level must be examined carefully if maximum feed efficiency is to be obtained.

Relationship with Fat

The relationship between calcium and fat seems to be closely related to the melting point of the fat. It has been well known and well demonstrated that calcium will form soaps with the fatty acids, and it has been well demonstrated that the higher melting point fatty acids are less digestible in the form of these calcium soaps. California workers have clear cut data showing that addition of calcium to diets containing high melting point fats results in a marked reduction in the digestibility of these fats. With low melting point fats, added calcium had no effect on digestibility.

In this day of high energy feeds with the addition of many different forms of fat to animal feeds, comparatively little attention has been given to the possible relationship between high levels of calcium and the utilization of these fat sources. However, it would seem quite probable that additions of extra calcium to diets containing high melting point fats would result in a lowered digestibility of these fats.

Too often feed formulators have felt the pressure to add "extra" or "bonus" amounts of an ingredient as a sort of "insurance" that animals consuming the feed will get all they need. The relatively low cost of calcium compounds has made the temptation even greater to put more than required amounts of calcium in the feed formula. There is abundant evidence that simply adding extra limestone to the feed can have harmful effects. To a very considerable degree, the addition of other essential mineral elements will balance the added calcium and give good results. However, the potential relationship of calcium additions to protein and fat utilization suggests that indiscriminate addition of calcium can lead to trouble for the feeder.

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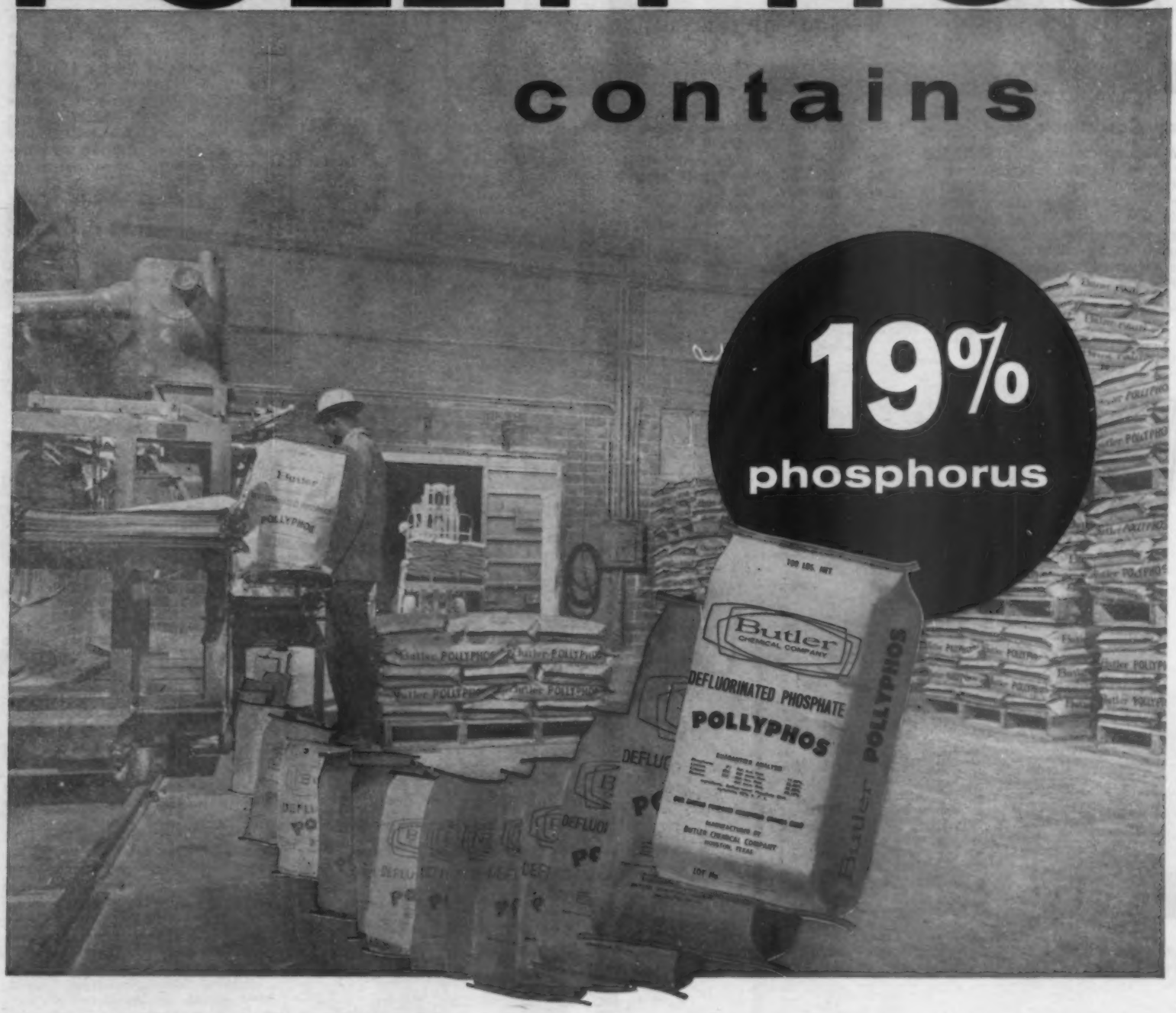

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Hay Conditioning

A series of tests conducted by University of California agricultural scientists indicates that hay conditioning in California — where summer rains are rare—might be an unnecessary expense for some farmers, although the process might improve the harvesting schedules of others.

"Each farmer must weigh the advantages and disadvantages under his particular conditions, and then decide for himself if he should condition his hay," says Robert A. Kepner, agricultural engineer. He notes that hay conditioners are becoming increasingly popular in the Midwest and East, where it has been found that rolling or crimping hay after cutting can shorten drying time and lessen the risk of damage from rain.

A report of the California analysis concludes: "The farmer who conditions his hay has the added costs and problems of an extra operation with a special piece of equipment. He will also have some additional field loss of hay.

"To justify conditioning, the farmer should consider and evaluate possibilities of (a) improved feeding response or a higher price per ton; (b) saving on hay that might otherwise be lost or damaged because of bad weather; (c) improved scheduling of other operations in the haymaking sequence, and (d) reductions in time or labor required for other operations."

◆

Dairy Cow Crossbreeding

Ten years of crossbreeding research at the University of Illinois indicates that hybrid vigor can improve production records of dairy cows.

Dr. R. W. Touchberry, associate professor of dairy genetics, reports that records of 42 crossbred cows show 14.5% more fat and 4.5% more milk than records of 38 similar purebred cows on a mature equivalent basis.

On the basis of 1,000 lb. of live weight, the crossbred cows averaged 13% more fat and 7.3% more milk than their purebred half-sisters.

Dr. Touchberry notes also that crossbreds performed better than purebreds in livability and rate of gain. Of 161 purebred calves born under experimental conditions, 30 died of natural causes before they were two years old. Out of 178 crossbred calves in the same experimental program, 14 died—less than half as many as the purebred calves.

Calves in the crossbreeding program gained faster for the first three years of their lives than their purebred half-sisters. After that, their rate slowed to less than that of purebreds—so by the time the cows were all five years old the weight difference had practically disappeared.

"Crossbreeding probably is not for the top 10-20% of the purebred dairy cattle breeders," Dr. Touchberry says, "since the industry depends on them to furnish the high quality germ plasm need for the program. But crossbreeding may be definitely in the picture for commercial producers.

◆

Keep Livestock from Junk

Junk doesn't belong where livestock can get at it.

The Missouri Veterinary Medical Assn. cautions that death losses may be the result of animals chewing away on empty paint cans, discarded car batteries or other items thrown into a feeding area or pasture gully.

The association reports that several purebred calves on a southwestern Missouri farm died of lead poisoning after they had access to empty paint cans. And there have been other cases of this nature where cattle or swine have been poisoned by chewing on old car batteries or where animals have grazed herbage or crops sprayed with lead arsenate. Most cases of this type occur, however, where cattle, especially calves, lick newly-painted farm buildings.

Symptoms such as circle walking, drunken gait, muscle spasms, convulsions, teeth grinding and bellowing may indicate that this problem is present, says the association. Prompt treatment, including the use of a new type of intravenous antidote, will save a percentage of poisoned animals.

Prevention of such poisoning, of course, is even better.

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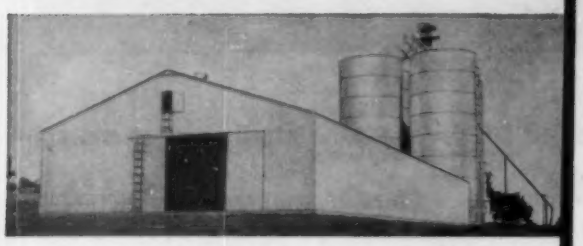

FLAT STORAGE Columbian RIGID-FRAME steel buildings are reinforced to handle grain in big volume. You can fill 'em up safely. They are inexpensive, sturdy, give you the fire-safe and vermin-proof qualities of steel. Sizes up to 100 ft. wide and in any desired length. Write for specifications today.

AUXILIARY STORAGE to meet quick, current demand, cheaply

Columbian corrugated, galvanized BIG granaries go up fast, cost little, meet CCC requirements, let you cash in NOW on storage needs. Sizes up to 20,000-bu. capacity. Be ready before next harvest. Get literature and prices now.

BULK FEED Mill storage...feed manufacturer and dealer storage...on-the-feed-lot storage...in Columbian steel bulk feed tanks is the efficient way to handle and use bulk feed. Engineered for easy use, there's a design to fit your handling requirement, a size to fit needed volume. A single tank or a complete terminal plant will save you labor and cost when Columbian engineering and Master-Crafted steel equipment is used. Get the whole Columbian bulk feed equipment story. Write us today.

COLUMBIAN STEEL TANK COMPANY

P. O. Box 404B- R Kansas City, Mo.

Member, American Dehydrators Association. Associate Member, Grain & Feed Dealers National Association

Reg. U.S. Pat. Off. TANKS FOR THE WORLD

STEEL, Master-Crafted by Columbian . . . First for Lasting Strength

Brewers Dried Grains
Dried Brewers Yeast
Primary Source
The New Century Co.
3939 So. Union Ave.
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Phone: Yards 7-1003

Use Feedstuffs WANT ADS for RESULTS

DO HIM A FAVOR HE'LL REMEMBER

(THE HOG RAISER WHO THINKS "SALT IS SALT")

REMIND HIM TO ORDER MORTON T-M SALT. Even though salt is a small part of his feed bill, Morton Trace-Mineralized Salt helps increase feed efficiency so all his feeds do a better job. He'll appreciate your reminding him—and he'll be back regularly to do more business with you. What's more, Morton T-M is a quality product you can recommend with confidence to any livestock producer. It is a profitable item backed by strong promotion that helps make it sell easily.

TO ADD MORTON T-M SALT TO YOUR LINE, JUST WRITE MORTON SALT COMPANY, CHICAGO 6, ILLINOIS

MORTON TRACE-MINERALIZED SALT

Convention Calendar

Sept. 29-30 — Pacific Northwest Garden Supply Trade Show; Masonic Temple, Portland, Ore.; mgr., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Oct. 1-2—National Feed Ingredients Assn.; Pick-Congress Hotel, Chicago, Ill.; sec., Peter W. Janss, 212 Equitable Bldg., Des Moines, Iowa.

Oct. 6-8 — Northeastern Poultry Producers Council Exposition and Convention; Farm Show Building, Harrisburg, Pa.; chm., Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

Oct. 7-9—Texas Nutrition Conference; Texas A&M College, College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 8—Fall Feeders Day; North Platte Experiment Station, North Platte; Prof. W. J. Loeffel, Animal Husbandry Dept., University of Nebraska, Lincoln.

Oct. 9—Montana Cattle Feeders Day; Montana State College, Bozeman; Dr. O. O. Thomas, Department of Animal Industry.

Oct. 11-14—Kentucky Poultry Federation and Kentucky Poultry Improvement Assn.; Cumberland Falls State Park, Corbin; sec., John W. Tuttle, 730 Rose St., Lexington, Ky.

Oct. 14—Animal Nutrition Research Council; Shoreham Hotel, Washington, D.C.; sec., Irwin Olcott, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32, Ill.

Oct. 14-15—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Agricultural Experiment Station Bldg., University of Kentucky, Lexington, Ky.

Oct. 15-16—Michigan Feed & Grain Dealers Assn.; Kellogg Center, Michigan State University, East Lansing, Mich.; sec., Novels Pearson, P.O. Box 472, East Lansing, Mich.

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

• • •

Oct. 27-28—Indiana State Poultry Assn.; Hotel Severin, Indianapolis; sec., Robert L. Hogue, Poultry Science Bldg., Purdue University, Lafayette, Ind.

1960

May 1-4—National Fisheries Institute; Hotel Fontainebleau, Miami Beach, Fla.; asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

June 14-15—Alabama Poultry Industry Assn.; Municipal Auditorium (Exhibits) and Thomas-Jefferson Hotel, Birmingham, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

Oct. 19-20—Beef Research Conference (attendance by invitation); Purdue University, Lafayette, Ind.; sponsored by Agricultural Research Institute and National Academy of Sciences-National Research Council; Dr. C. B. Cox, Agricultural Economics Department, Purdue University.

Oct. 19-20—California Animal Industry Conference; Fresno Memorial Auditorium, Fresno, Cal.; sponsored by California Hay, Grain & Feed Dealers Assn. and University of California; chm., Berton Maxwell, Poultry Producers of Central California, Petaluma.

Oct. 20-21—Virginia State Poultry Federation; Hotel John Marshall, Richmond, Va.; sec., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Oct. 21—North Dakota Swine Day; North Dakota Agricultural College, Fargo; M. L. Buchanan, Chief, Division of Animal Industry.

Oct. 22 — North Dakota Turkey Federation; American Legion Hall, Cooperstown; sec., Irving J. Mork, Department of Poultry Husbandry, North Dakota Agricultural College, State College Station, Fargo.

Oct. 22-23 — Annual Stockholders Meeting, Cooperative G.L.F. Exchange, Inc., Onondago County War Memorial Building, Syracuse, N.Y.

Oct. 22-23—Iowa Seed Dealers Assn.; Savery Hotel, Des Moines; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines 9, Iowa.

Oct. 23—Arkansas Poultry Study Day; University of Arkansas, Fayetteville; Prof. Robert M. Smith, Department of Animal Industry and Veterinary Science.

Oct. 29—Nebraska Feed & Nutrition Conference; University of Nebraska, Lincoln; chm., Dr. John Adams, Poultry Husbandry Department.

(Turn to CALENDAR, page 84)

UNIDENTIFIED FACTOR(S)

(Plus Dozens of Known Factors)

PUTS POWER IN DEHY

While man-made satellites and inter-space missiles sweep billions of miles into Infinity, scientists remain baffled by the miracle growth powers in DEHY (dehydrated alfalfa or grass).

We don't know what it is, but we know what it does...

Scientists agree that Dehy contains an unknown factor essential for optimal growth and reproduction. In a recent report on a least-cost broiler formula, Hutton and others (ARS, USDA) took note of the value of alfalfa meal as a source of an unknown growth factor by specifying a minimum level of 2% *regardless of cost*. Other tests have shown the existence of an unknown factor in Dehy which is essential for *maximum hatchability*. (Touchburn, Poultry Sci. 36:591, '57)

The challenge of the unknown remains, but this we know . . .

Scientists agree that Dehy is an economical source of vitamins A, E, and K, riboflavin, and particularly xanthophyll. Ferguson and others at Texas A & M calculated that 5% of Dehy added $10.08 worth of xanthophyll to 100 lb. of one diet at a cost of 94c.

For a better, low cost POWER PRODUCER—in all your poultry feeds—use DEHY.

Dr. H. R. Bird, University of Wisconsin, in answering the question, "Why Feed Alfalfa Meal to Chickens?", had this to say, "If alfalfa meal supplied only one useful nutrient, it would be easier to answer the question. Because it supplies several, there are several good reasons for using it and they all add up to more economical conversion of feed dollars to product dollars."

AMERICAN DEHYDRATORS ASSOCIATION
Board of Trade Building, Kansas City 5, Mo.

Write for FREE Report . . .

ADA American Dehydrators Association
PASTURE IN THE BAG

Fleischmann's F·I·D·Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR FOOTED ANIMALS

REMEMBER TO ORDER
CHASE BAGS
There's None Better!

CAN YOUR HOG PRODUCERS ANSWER THESE 3 QUESTIONS?

1. What was your cost per pig weaned last year?

2. How much feed did you use to produce 100 pounds of pork last year?

3. What was your net return over total costs last year?

If they can answer them, they're keeping records and know their value. If they can't, they need the unique, easy-to-use Record System described in the next three pages.

You, as a feed manufacturer or feed dealer, can now offer this Record System to your hog producers at no charge.

Now, you can offer a service long needed and wanted by hog producers

Cyanamid Production Accounting record is shown here with bills and sales receipts in handy pockets.

Offer CPA—Cyanamid Production Accounting. Your hog producers keep accurate records, put them to work reducing costs.

"Cyanamid and your feed manufacturer believe so strongly in the value of keeping records that they are bringing you your own personal CPA RECORD—a compact, convenient, easy-to-use record system."

This is the message your hog producers will be reading this fall in Cyanamid advertising in national, sectional and state farm papers.

Keeping accurate records for all stages of hog production has long been recommended and urged by feed manufacturers, extension specialists, bank farm advisers and leaders in the hog industry. This is the first time, we believe, that a complete record-keeping system has been offered *free* on a national scale. The CPA RECORD will be available only through feed manufacturers and feed dealers.

You can render a genuine service to your customers by offering CPA. Hog producers, by evaluating their records and acting upon what they show, can produce more hogs with the same labor and capital. They can wean more pigs per litter . . . produce more pork on less feed. They can plan production so that they sell on a higher market.

What CPA is

CPA RECORD is a 9" by 14" folder that can be used as a desk portfolio or opened out and used as a wall chart. It has handy pockets for keeping feed, veterinary and miscellaneous bills and sales receipts.

Most important in CPA are the record sheets themselves which are attached, at the proper time, to the master folder. There are two complete sets of these sheets to cover the records for all stages of production.

Record "A" is for posting feed during gestation and lactation. Space is provided for recording both purchased and home-produced feed.

Record "B" covers sow production at farrowing and weaning. Space is provided for a complete record on each individual sow.

Record "C" is a gestation-lactation summary. Here is where cost per weaned pig is figured.

Record "D" is for posting both purchased and home-produced feed during the growing-finishing stage. Space is provided for notes on death losses — and for dates and numbers of pigs started and finished.

Record "E" is for determining net return. To figure net return, farmers must know all costs in addition to feed. These costs are for pasture, veterinary services and supplies, labor, building and

CPA RECORD, with two record sheets attached, is shown as it appears when opened out.

BALANCED FORMULA FEEDS

with the proper levels of

- **PROTEIN**
- **ENERGY**
- **MINERALS**
- **VITAMINS**

PLUS

- **AUREOMYCIN**

are the basis for rapid, efficient, profitable pork production

FEED BILLS

VETERINARY BILLS

CYANAMID PRODUC FOR

RECORD A **GESTATION–LACTATION FEED**

PURCHASED FEED				HOME-PRODUCED FEED				
Date	Kind	Lb.	$	Date	Corn	Oats		

Get better sow performance by feeding AUREOMYCIN during the gestation, farrowing and lactation periods.

Keep starter pigs healthy and gaining fast on feeds containing AUREOMYCIN. Wean more pigs per sow.

Keep growing-finishing hogs on feed containing AUREOMYCIN all the way. Send more hogs to market.

equipment use, interest, taxes and overhead. Estimates of these costs, based on a study made by a leading midwest university, are supplied. These can be used as a basis of comparison or for estimating net return.

CPA is designed to be equally usable by the producer of feeder pigs, the purchaser of feeder pigs, or the man with a complete operation. Ideally, a set of records should be kept for each group of sows due to farrow at a given time and should be started when the sows are bred. CPA is flexible enough, however, to allow the producer who is farrowing continuously to keep annual records.

How AUREOMYCIN® pays

Many hog farmers who have kept records over a period of years know that AUREOMYCIN pays off when fed at every stage of hog production.

Recent controlled experiments conducted on 7 farms in Iowa involving 176 sows and their litters totalling 1523 pigs, revealed remarkable results when AUREOMYCIN was fed to sows and pigs from breeding to market.

There was an extra return of $3.65 for each $1 invested in AUREOMYCIN.

In these controlled experiments one group of sows and their litters were fed AUREOMYCIN. Another group of sows and their litters received no AUREOMYCIN. Results showed 9 more pigs weaned per 12 sows from the group fed AUREOMYCIN. That's a *big extra litter* and a significant profit picture for any hog farmer.

After weaning, the pigs were continued on the experiments through the growing-finishing stage — one group on AUREOMYCIN, another group without AUREOMYCIN. 10 more pigs were marketed per 12 litters from the group fed AUREOMYCIN. At market, that represented an extra return of $356.48 from one farrowing of 12 sows.

Combine this program with CPA RECORD keeping

When your hog producers follow the multi-stage swine raising program with your good formula feeds containing AUREOMYCIN, the CPA RECORD will show that hogs put on gains at the lowest possible cost.

We're urging hog producers to see their feed manufacturer or feed dealer for the CPA RECORD and for good formula feeds containing AUREOMYCIN for the multi-stage program — gestation, farrowing, lactation, starting, growing and finishing.

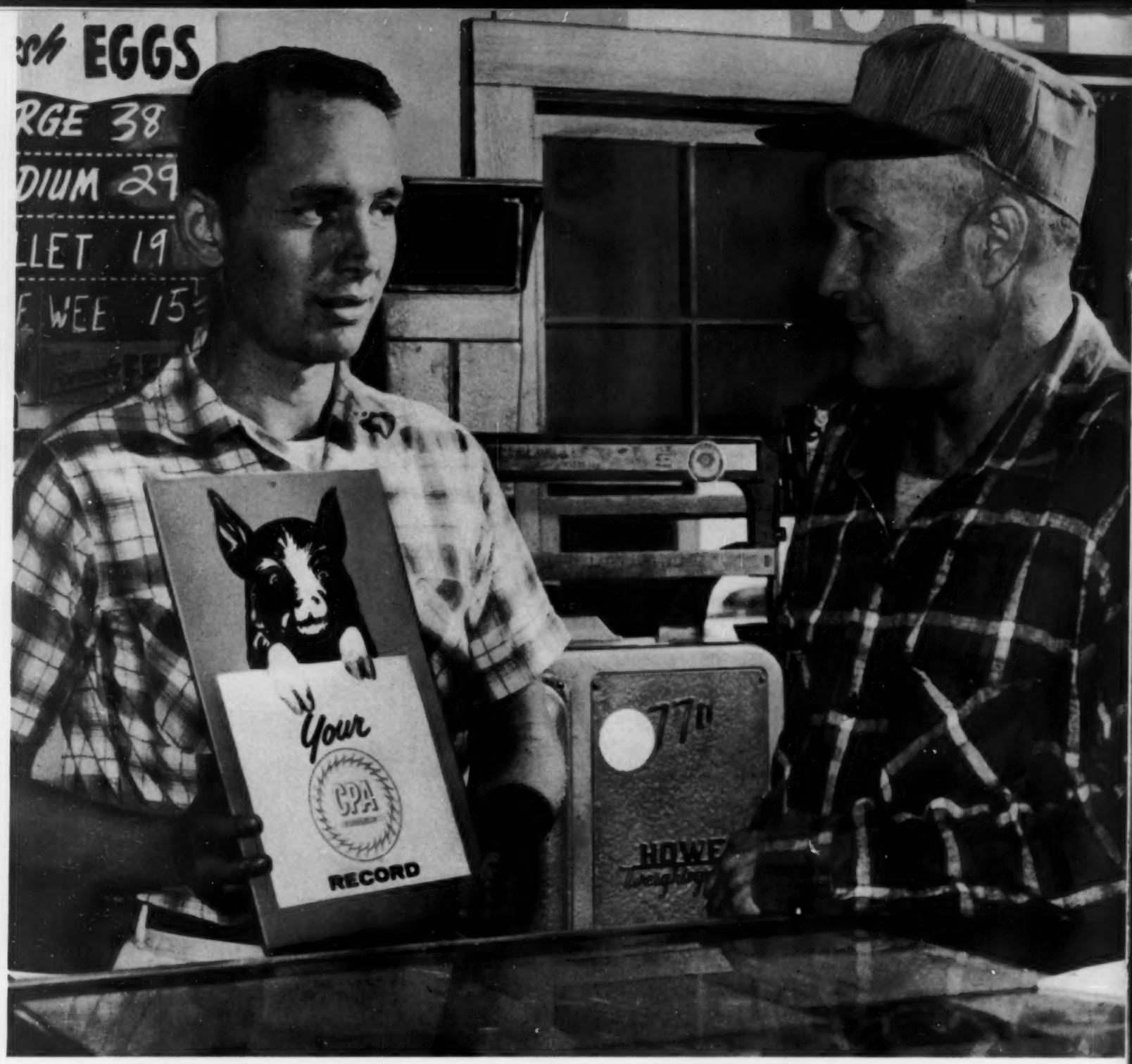
On the back page you will find full details on how to get your supply of CPA RECORDS.

*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.

TION ACCOUNTING
SWINE

RECORD ■ SOW PRODUCTION

Sow No.	FARROWING Date	No. Born Alive	No. Born Dead	Birth Weight	WEANING Date	No. Weaned	Litter Weight	Date Vaccinated	NOTES



Customers will see or write you for their CPA RECORD

Your customers are being told—in national advertising in the farm magazines shown below—to get their CPA RECORD from their feed manufacturer or feed dealer. A coupon has been included for their convenience in writing to you. Feed manufacturers and feed dealers are urged to contact a Cyanamid field representative—or to write direct to Cyanamid—for full details on CPA and how it can be used to advantage.

American Cyanamid Company, Agricultural Division, New York 20, New York.

CYANAMID

AUREOMYCIN
IN FORMULA FEEDS

N. C. Board Extends Temporary Regulation On High Fiber Feed

RALEIGH, N. C.—A temporary regulation permitting the sale of high-fiber poultry feed was extended for another year when the North Carolina State Board of Agriculture met recently.

However, the regulation which first became effective Sept. 1, 1958, was reviewed and its labeling provisions were amended.

As originally adopted, the regulation required that feeds be labeled "High Fiber Pullet Developer for Layers" or "High Fiber Turkey Developer for Layers." A feed manufacturer pointed out that the words "for layers" are misleading because the feed is intended to be fed to young birds to delay the onset of egg production, and should be discontinued when the laying period begins. Advantages claimed for the high-fiber feed are larger eggs, and eggs with a higher degree of hatchability, when sexual maturity is delayed by this kind of self-restricting feeding.

As amended, the regulation requires that such feeds be labeled "High Fiber Pullet Developer" or "High Fiber Young Turkey Hen Developer." No change was made in the standards set a year ago for these feeds, which require minimum of 9% protein and 2% fat and a maximum of 20% fiber. Also unchanged is a requirement for the following statement to be printed on the label: "To be fed to pullets (or to young turkey hens, if it is a turkey feed) to delay sexual maturity and onset of egg production."

Research workers and members of the board expressed the opinion that use of this kind of feed for the purpose indicated is still in an experimental stage. For this reason, the amended regulation was made effective from Sept. 1, 1959, to Sept. 1, 1960. Before next September, the board will again review it to determine whether it should be continued and, if so, whether the standards should be revised.

Also considered at the meeting was a request from a feed manufacturer that maximums on non-protein nitrogen in feeds for ruminants be raised to 33⅓% of the total crude protein in mixed feeds, and to 50% for supplements to be sold for mixing on the farm.

The board voted to make no change in the regulation, however, after Dr. E. R. Barrick, department of animal industry, North Carolina State College, said present regulations now permit what are considered to be maximum safe levels of urea and ammonium salts in mixed feeds, and that selling high-urea supplements direct to farmers would present some hazards. "If improperly used, urea is toxic to animals," he said.

FEEDS CORN COBS

COON RAPIDS, IOWA—Corn cobs as cattle feed were recommended by Robert Garst when he played host to some farm people at an open house prior to the Khrushchev visit to his farm. He said he believes in feeding corn cobs with molasses and urea.

more feedmen read

FEEDSTUFFS

than any other magazine in the field

this wedding of glass to steel...

Spraying liquid glass slip on grit-blasted sheets.

Microphoto shows how glass permanently fuses to steel. (Magnification: 150 diameters.)

Glass is fused to the steel at temperatures in excess of 1,600° F.

Inspection of the finished sheet.

. . . guards your bulk materials with permanence of steel—purity of glass*

The permanent bonding of glass fused-to-steel *inside* and *out* —exclusive with Permaglas MECHANIZED STORAGE UNITS!

Think of it! A clean, gleaming coat of glass . . . permanently bonded to steel at temperatures in excess of 1,600° F., with bond strength up to 20,000 psi. This impervious glass has the same coefficient of expansion as steel itself . . . withstands weathering and abrading of bulk materials.

This *exclusive* feature of *Permaglas* Mechanized Storage Units makes possible sanitary, easy-to-clean bulk materials handling systems. Eliminates ravages of corrosion . . . deterioration of stored materials. Virtually ends maintenance costs! Another *exclusive* feature: Sweep-arm bottom unloaders completely mechanize bulk materials handling . . . cut labor costs as much as 67%.

Mail coupon today for full details on this new cost-saving way to process and store bulk materials.

*HYDRASTEEL—Process covered by U.S. Patent No. 2,754,222

Exclusive mechanical sweep-arm bottom unloaders, automatically discharge bulk materials into the conveying system in the Permaglas Storage Unit System shown above. Incoming bulk materials are top-loaded directly into the Permaglas Units.

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City.....Zone...State.....

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Schwartz & Co., (Grain) Ltd.
Victoria Products and Grain (overseas agents) Ltd.

THE 3 PURITANS

The Three Puritans symbolize the three CCC quarries—in Quincy, Illinois, Carthage, Missouri and Weeping Water, Nebraska—so called because of the high purity of the deposits.

Calcium Carbonate Company

320 South 4th St., Quincy, Illinois
Box 409, Carthage, Missouri
325 W.O.W. Bldg., Omaha, Nebraska

MAKING PROTEINS MEET OUR NEEDS

By Dr. Harold L. Wilcke
Assistant Director of Research

Ralston Purina Co.
St. Louis

EDITOR'S NOTE: This article, outlining current and likely future developments in the use of protein sources in feeds, is reprinted with permission from the Cotton Gin and Oil Mill Press.

Our worldwide supplies of protein for both humans and animals must be used with the utmost discretion. Scrimshaw* in a recent article has described the effects of inadequate intake of protein for children in some of the countries which have less plentiful supplies than we do in the U.S. He has described the symptoms of Kwashiorko and Marasmus found in these areas and the high rate of infant mortality when insufficient protein is available.

He has also demonstrated how this may be corrected by cottonseed protein used in the diet along with carbohydrates which are produced locally. It is one of the vagaries of nature that carbohydrates seem to be produced in much greater abundance than protein.

In this article, however, we are discussing protein for animal use rather than for the human. The amounts of supplementary protein required by our ever-increasing animal population are tremendous. It has been estimated by the American Feed Manufacturers Assn. that in the current feeding year 2.4 million tons of (soybean meal protein equivalent) protein concentrates will be required to supply the protein needs of the beef cattle in this country. Also, 3,276,000 tons will be required to meet the needs of swine, 5,845,000 tons will be required to meet the needs of poultry, 2,743,000 tons will be required to meet the needs of dairy cattle, 174,000 for sheep and lambs, and 398,000 for other miscellaneous animal feeds. The total, 14,916,000 tons, is indeed a staggering figure.

ANIMAL BY-PRODUCTS—At one time, animal protein by-products, such as dried milk, meat and bone meal, tankage and fish meal, supplied the greater part of the supplemental protein for livestock feeding. Total supplies of these protein supplements have remained relatively constant; but animal populations, and consequently the requirements for protein supplements to meet the needs of this animal population have greatly exceeded the total supplies of animal protein by-products.

Today, by far the greater proportion of these needs is met by the use of vegetable protein such as cottonseed meal, soybean meal, peanut meal, etc.

Oilseeds are excellent sources of protein. Cottonseed, as such, was used extensively as an animal feed at one time, but it was soon found that the cottonseed contained valuable oil which could be extracted and used for human food much more advantageously.

COTTONSEED MEAL — Many years ago, practical feeders thought that cottonseed and cottonseed meal might be toxic to ruminants because of the development of such symptoms as blindness, staggering, etc., when cottonseed meal and hulls or whole cottonseed made up the principal part, if not the entire ration. It has been demonstrated by research workers, however, that these symptoms were caused by a deficiency of vitamin A rather than to any toxic principle in the cottonseed or meal. This knowledge has made possible the extensive use of cottonseed meal and cake for livestock feeding.

Cottonseed cake has been used as a winter supplement for cattle on

*Scrimshaw, Nevin S., Jour. Amer. Diet. Assn., 35:441, 1959.

DO HIM A FAVOR HE'LL REMEMBER

Remind him to order Morton T-M Salt. See page 35.

You can sell best

...and customer satisfaction "comes in Burlap!"

Have you ever added up the inducements you can offer when you sell sacked feed in burlap? They can help you in selling. Here they are:

1. *A discount* on every ton of feed, when the mill provides a return-bag program.
2. *Simplified inventory* for the customer.
3. *Identification* for medicated feeds.
4. *Non-separation* of formula-ingredients.
5. *Your prices* are competitive with returnable burlap bags.
6. *Service*...you can give small customers as good delivery service as large customers (and on the same route).
7. *Bulk customers* can be served with bag-to-bulk trucks.
8. *Quantities* can be bought *as needed.*
9. Feed in burlap bags is *sanitary and free from contamination.*
10. *Accurate weights* are assured in a burlap bag.
11. *Fifty-pound* as well as 100-lb. bags can be offered.
12. Farmers have many uses for empty bags...only burlap serves them so well!

Quite a few selling-points, don't you agree? Next time you're selling a new customer, remember there's a lot to be said for burlap bags!

Just ask your own customers—they'll tell you that burlap
Is strong — takes dragging, dropping, man-handling — any tough job on the farm.
Laughs at sudden showers — wetness or dampness can't weaken it.
Saves money — extra value from re-sale and re-use.
Gives good ventilation — keeps farm supplies and products fresh.
Saves storage space — stacks to any height without slipping.
1000 USES
Has 1000 uses — always in demand on the farm (popular with farm wives, too!)

range for many years. It is still used by many cattlemen, but with the improved knowledge of its place in nutrition it is properly supplemented with vitamins, minerals and other necessary nutrients today, and it is an important ingredient in manufactured feeds for ruminants.

It has been demonstrated repeatedly that the nutritive value of cottonseed protein is damaged by heat. Therefore, processors today apply a minimum amount of heat in removing oil and preparing the meal for use in animal feeds.

COTTONSEED MEAL FOR SWINE, POULTRY—Much work has been done to determine the value of, and the true place of cottonseed meal in rations for monogastric animals, principally poultry and swine. There are several problems in the use of cottonseed meal for this class of animal, but none is insurmountable. More and more cottonseed meal is being used in the rations for swine and poultry as economics permit.

In the present era of high-energy rations, one of the handicaps of some cottonseed meal has been high fiber content. Therefore, when cottonseed meal is to be used for poultry or for swine, the fiber must be kept as low as possible.

The first limiting amino acid in cottonseed meal when it is used for nonruminants appears to be lysine. Supplementation with lysine improves results very considerably when cottonseed meal provides the principal source of protein in the ration. However, this has not been economical to date because of the high price of the synthetic amino acid. Therefore a more judicious use of the cottonseed meal is the combination of cottonseed meal with other protein supplements which are higher in lysine, such as the soybean, fish meal, etc.

PROBLEM OF GOSSYPOL—Still another problem has been the presence of gossypol in the cottonseed meal protein. This is present in varying amounts, depending upon the strain of cotton grown, the type of processing, etc.

Free gossypol has been found to be toxic for either chicks or pigs, as well as other small animals, when fed at relatively low levels. When the amount of gossypol is borderline, a slower rate of growth in the young animal results. The exact level where this effect occurs is varied, depending upon the quality and quantity of protein in the diet, upon the form in which the gossypol is supplied, that is, whether it is present in the natural state in pigment glands or whether it is fed as a comparatively pure gossypol. When fed at sufficiently high levels, gossypol will cause death in these animals. The levels required to produce this effect are lower when the gossypol is fed in the form of pigment glands.

These effects are mentioned here only to emphasize the fact that these are not protein effects, but only effects of something associated with the cottonseed meal. Much progress is being made, both by breeding and by processing, to eliminate this handicap for the free use of cottonseed meal.

Dr. Harold L. Wilcke

Cottonseed meals are being produced today which are sufficiently low in gossypol to be used in the ration of either young growing chicks or swine.

SOYBEAN MEAL—Another vegetable protein crop, the soybean, is becoming more and more widespread in the South. Actually, of course, the principal soybean producing states lie in the Middle West. But with acreage restrictions on cotton and the development of new varieties of soybeans which are more adapted to southern climatic conditions, the number of soybeans produced in the southern states has increased very rapidly in recent years.

There are some interesting contrasts in the treatment required to prepare soybeans and cottonseed for animal feed use. As we have stated, the cottonseed protein is damaged by heat, and therefore, little or no heat should be used in processing. The reverse is true with the soybean. The soybean carries some factor which retards rate of growth in young animals. This factor is destroyed by the application of the proper amount of heat. There is some question as to the exact nature of this factor, for there

what serves best!

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is some doubt now as to whether it is a trypsin inhibitor as was supposed at one time, or whether this effect may be due to availability of amino acids.

Problem of Urease—There is an additional factor in the soybean, namely urease, which is detrimental when the soybean meal is used in combination with urea in the ration of ruminants. This urease is also inactivated by heat. However, soybean protein also will be damaged when too much heat is applied. Some of the amino acids, and particularly essential ones such as lysine, become unavailable when the soybean protein is overheated.

These are some of the points of progress that have brought us to the place we are today in the use of these vegetable proteins in animal and poultry feeding. As we look ahead, we foresee a vast increase in animal and poultry population in this country and in the world in general.

CAN WE MEET PROTEIN NEEDS?—The problem ahead of us then centers around this question: Can we increase our total supplies of protein sufficiently to meet the needs of animals and of humans properly in order that we may have efficient nutrition?

Certainly we are not using our proteins efficiently today. The question will also face us: Must we use these proteins directly for human nutrition or will we be able to maintain what we consider a high standard of living as we have it today when we have the meat, milk and eggs as our sources of protein in the human diet? Research programs of today are directed toward finding the answer to this question of more efficient utilization of protein.

Protein is usually the most expensive part of a ration when we think of it as a supplement. However, we should not overlook the fact that cereals actually provide a vast amount of protein and our so-called protein supplements are actually supplementing the protein already present in the cereals. A considerable amount of work has been done in an effort to determine protein requirements of the various species of animals and of man. There are broad ranges in the estimates of protein requirements as stated by investigators in this field.

For example, the protein requirements of the laying hen have been estimated to be from 11 to 19% of the total diet. The question arises as to whether there can be this amount of variation in the requirement of different lots of animals, whether these differences in levels obtained in the various research projects may be due to environmental factors, or more probably, whether they are due to differences in the biological balance of the protein used in the experiments. I am convinced that the major part of differences in requirements as stated today are due to the nutritional completeness of the proteins used.

Some work has been done to try to determine the requirements for individual amino acids by the various species. Here again there is a great deal of difference in the requirements as stated. Future research must determine how we can study the availability of the amino acids in natural sources.

We must determine not only the amount of amino acids present in these different proteins, but we must determine the form in which they exist in the natural state. In the case of many of the amino acids, one form is readily available biologically where other forms of the same amino acids may be of very little value to the animal.

The total level of protein present in the ration will affect the amount of the individual amino acid required. It is also true that the rate of release of the amino acids from the protein may affect their utilization by the animal. It is a very interesting phenomenon of metabolism that unless all of the amino acids required to build the animal tissue protein are present at the proper time, they will be utilized very poorly.

It is becoming increasingly apparent that we must be thinking of and adjusting the amino acid content of the ration for the simple stomached animals rather than thinking in terms of crude protein. While we have been emphasizing the amino acid requirements of the simple stomached animals, some recent work has demonstrated that the ruminant is more selective than we had supposed in its use of protein. The immediate practical significance of this work is that it demonstrates that we must also process those protein supplements that are intended for ruminant use more carefully than has been done at times in the past.

During the past few years there have been a number of pieces of research work which have demonstrated that when rations are supplemented with the limiting acids, lower total levels of protein may be used. This has been demonstrated for turkey poults, and for laying hens by several workers recently. It has also been demonstrated that the proper ratio of calories to protein tends to permit the animal to make more efficient use of the feed, thus conserving protein by utilizing less total feed in the production of the meat.

Therefore, as we look to the future needs and supplies of protein supplements, we will be able to make more efficient use of our proteins and reduce the total level of proteins in the ration by making use of synthetic amino acids which are now becoming available at economical prices. We will utilize less total protein by combining it more efficiently with other nutrients, not only calories, but vitamins, minerals, and unknown growth factors. And of course, we will hope to have more efficient animals in the future, animals which will utilize feed more efficiently.

Our research programs today are directed more and more toward the fundamental composition of our protein feedstuffs. Work is being done to demonstrate the role of carbohydrates, and enzymes, and in taking the seed apart to see what there might be in it that may be detrimental to the animals as well as those things which are beneficial. More complete knowledge of the composition of our protein supplies will enable us to use them more efficiently.

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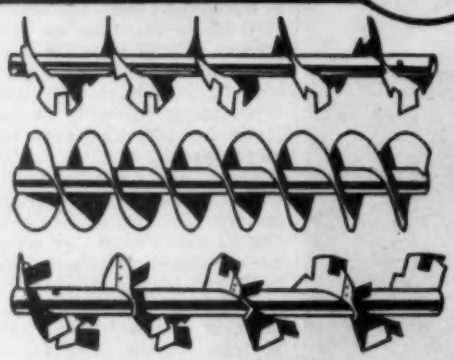

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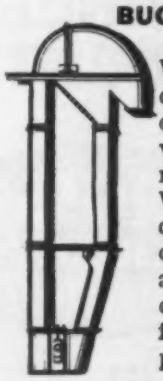

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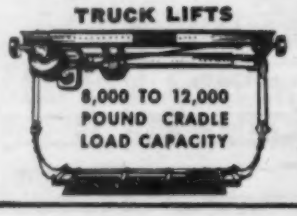
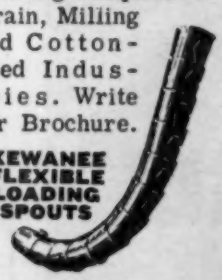


KEWANEE FLEXIBLE LOADING SPOUTS



3, 5, and 7-1/2 H.P. sizes for 10 to 15 ft. driveways.

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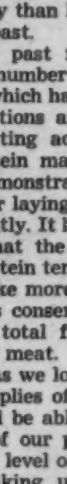

--conveys horizontally and elevates to any practical height. A time, labor and money saver. Ideal for flour mills and feed plants, handling material from processing to storage and/or to packaging. Write for Form M-500-2.

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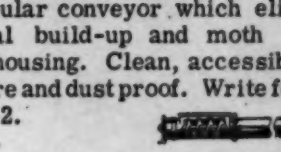

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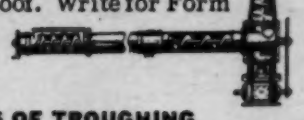

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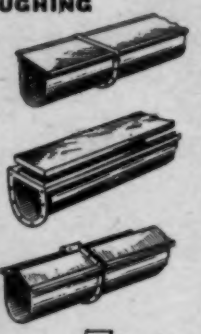

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"Modern manufacturing, bulk handling and top production feeds are helping Ful-O-Pep Dealers progress,"

says **H. W. CRUTCHFIELD,** *Manager of Sherman Feed Division of The Quaker Oats Company, in this report to Ful-O-Pep Dealers*

H. W. CRUTCHFIELD joined The Quaker Oats Company in 1940. After World War II, he served as a District Representative until 1955, when he was promoted to Manager of Ful-O-Pep's Sherman (Southwestern) Feed Division. Mr. Crutchfield is a director of the Texas Feed Manufacturers Association.

"Part of Ful-O-Pep's success in the Southwest is due to the high quality and dependability of our product. Research has contributed top production formulas for Ful-O-Pep. Quaker's modern manufacturing methods are assuring complete mixing and fast distribution at low costs.

"For example, at the Sherman feed mill, we have efficient feed blending equipment to assure accurate mixing of the many ingredients that make up quality Ful-O-Pep Feeds. New equipment for bulk handling of feed by cars, as well as trucks, is speeding up service to our dealers and reducing handling costs.

"A large percentage of all feed shipped from our mill is bulk. In addition, Quaker is helping dealers and feeders set up their own bulk feed facilities, so they, too, can benefit from this progressive development.

"New feeding and management programs are now available for the producers of broilers, beef cattle, hogs, turkeys and layers. Our District Representatives are helping dealers promote these planned programs.

"It is the aim of The Quaker Oats Company to help the dealer and the feeder both make money. We welcome inquiries from distributors who are interested in learning more about the Ful-O-Pep Feeds franchise."

H. W. Crutchfield

FUL-O-PEP FEEDS

made by The Quaker Oats Company

We invite Feed Dealers to visit our modern Feed Mills located at: Cedar Rapids, Ia. Memphis, Tenn. • St. Joseph, Mo. • Sherman, Tex. • Shiremanstown, Pa. • Lawrenceburg, Ind. • Chattanooga, Tenn. • Tampa, Fla. • Asheville, N. C. • Jasper, Ala.

Nebraska Consolidated Earnings Hurt by Loss At Puerto Rico Plant

OMAHA—Consolidated earnings of Nebraska Consolidated Mills Co., producers of Red Hat feeds and branded flours and corn meal, were $343,000 after taxes for the fiscal year ended June 28, 1959, according to the company's annual report.

J. A. Mactier, president, reported that earnings of the firm and its subsidiary in the continental U.S. were $644,000, but the new subsidiary in Puerto Rico incurred a loss.

He noted that returns from the company's animal feed division "were hampered by a very poor market for broilers, chickens and eggs, and in fact all poultry products, but this condition appears to be correcting itself." The company has Red Hat feed mills at Decatur, Ala.; Tunnel Hill, Ga., and San Juan, Puerto Rico.

Molinos de Puerto Rico, Nebraska Consolidated's new foreign subsidiary, started manufacturing late in April, 1959. Mr. Mactier said the combination of an operating loss during May and June, plus the write-off of certain development costs, gave that subsidiary an operating loss of $301,000.

"This loss has not been offset against U.S. income for computing taxes," he said, "because Molinos' income is not subject to U.S. taxes. However, a ruling is being requested from the Internal Revenue Service that the loss of Molinos de Puerto Rico can be consolidated for tax purposes with the profits of the other corporations."

Mr. Mactier explained further in his report to stockholders: "If the loss had occurred in Nebraska Consolidated Mills Co. proper, it could have been charged against income for tax purposes, and would be reduced by the 52% tax rate. In that hypothetical situation, our consolidated earnings for the year would have been increased $156,000 to $499,000.

"That, of course, does not change the results, but merely puts this Puerto Rican loss in the proper perspective. The other side of the coin is that earnings from Molinos de Puerto Rico will be fully tax exempt for 10 years."

His report states that the company's earnings per share are 77¢, the book value at the end of the year is $16.89 and dividends of 75¢ totaling $326,819 were paid during the year. Sales increased to $41 million from $36 million.

Mr. Mactier commented that operations in the continental U.S. are "going along very well." He said revenues in the flour department last year were materially helped by "an unusually good by-product market," and added, "We doubt if we will have that help again this year.

"We look forward to the new year in our continental U.S. business with every hope that this year's results will be as good or better than last year's.

"In Puerto Rico the current operations are approaching a break-even point. After four months of operations, our daily sales in Puerto Rico are approaching 50% of the plant's capacity. We feel that we have made good progress to reach this level so soon."

OFFICE DEDICATED — A new and enlarged office and laboratory building for Central Soya Co., Inc., at Decatur, Ind., was dedicated at an open house recently (Feedstuffs, Sept. 19). Harold W. McMillen (left), chairman of the board of directors, who gave the dedication address, is shown presenting the keys to the new building to Tom H. Allwein, manager of the Decatur office and feed manufacturing and soybean processing plants. Just prior to receiving the keys, Mr. Allwein was presented with a silver coated helmet as a token of Central Soya's silver anniversary year which began Sept. 1.

Allied Bulk Show

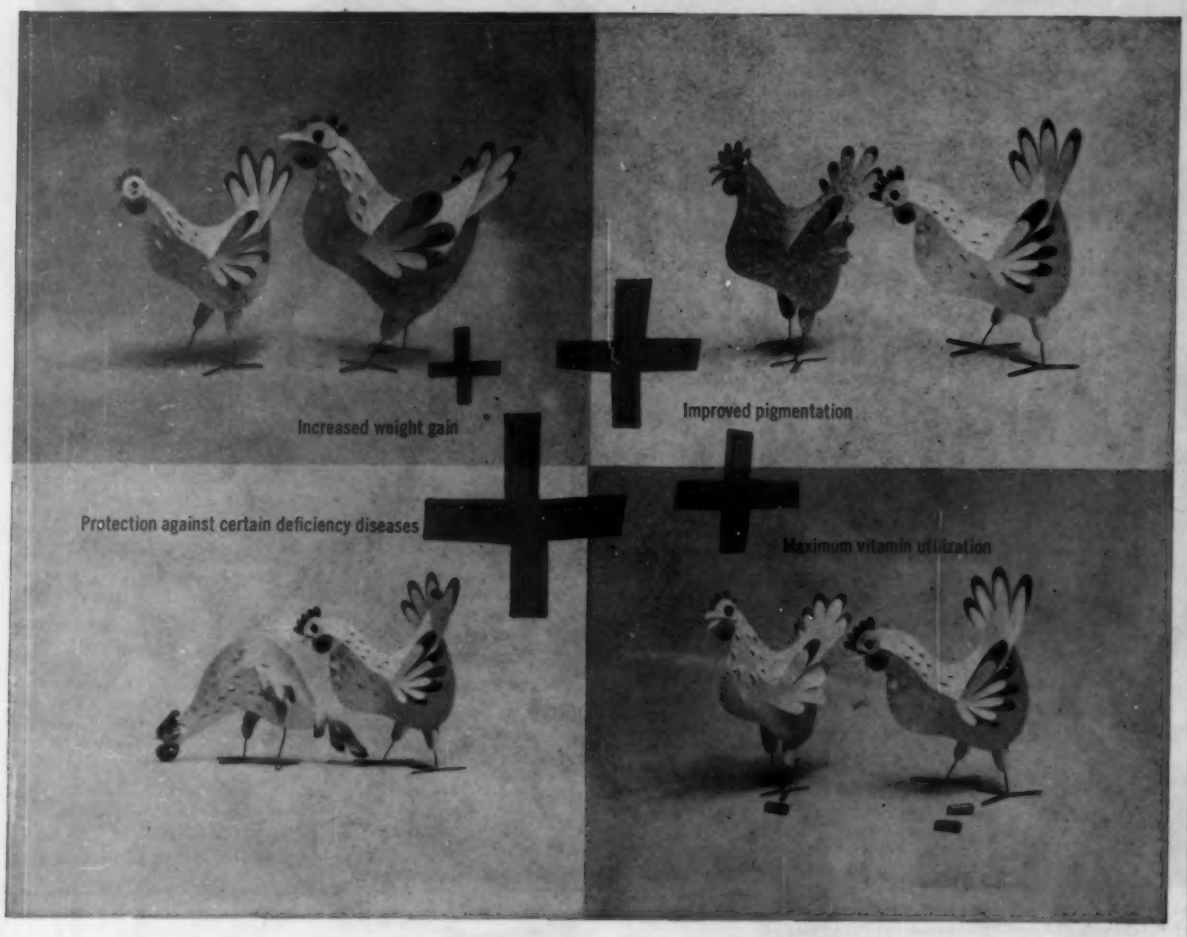
MASON CITY, IOWA—About 300 farmers and dealers from three states were in Mason City recently for a bulk feed handling equipment show sponsored by Allied Mills, Inc., of Iowa.

Nearly $300,000 worth of bulk feed handling equipment was displayed by about two dozen manufacturers from Minnesota, Iowa, Wisconsin, Alabama, Kentucky and Indiana.

Allied Mills is sponsoring bulk shows in various states in which its plants are located.

HIGH MOISTURE CORN

URBANA, ILL.—It was recently reported here at the University of Illinois that the practice of storing high moisture shelled corn in conventional silos is being accepted by livestock feeders because of several advantages: Early harvesting, rapid harvesting, minimum of operation, lower cost, rodent-free storage and simplified mechanical feeding.



Your feeds supply these extra performance factors when they contain **Tenox BHT** PROPYL GALLATE

an Eastman antioxidant for feeds

Here are four sound reasons for incorporating Tenox BHT-Agricultural Grade into your feeds.

Tenox BHT protects the all-important vitamin balance you build into your feeds.

Tenox BHT improves pigmentation in poultry by increasing the utilization of Vitamin A.

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Tenox BHT-Agricultural Grade is free-flowing, non-dusting, non-caking. Its particle size is similar to that of other feed ingredients. It blends quickly and does not separate during handling or storage.

Tenox BHT-Agricultural Grade was developed to meet the specific needs of poultry feed manufacturers. It is the result of information provided by feed manufacturers combined with our own extensive knowledge of antioxidant performance.

Build extra performance into your feeds by specifying the antioxidant specially made by Eastman for feed use...Tenox BHT-Agricultural Grade. Tenox BHT-Agricultural Grade is available from leading distributors throughout the country. To find out how you can use this antioxidant in your feed formulations, write today to EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of the Eastman Kodak Company, KINGSPORT, TENNESSEE.

Tenox BHT-Agricultural Grade available in 2 forms

1. Tenox BHT (Conc.)-Agricultural Grade which may be added to your own diluent.
2. 25% Tenox BHT Premix, containing 25% BHT on a nutritive cereal carrier.

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BROWER *Whirlwind* **FEED MIXER**

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LAST YEAR WE SOLD OVER

200 TONS!

90% of this tonnage was used in hog rations with the major portion used during the starter-grower period. Hog raisers notice the increased feed consumption and weight gain when Scotch O Lass is added.

It doesn't take much either because of the high concentration of black-strap molasses in Scotch O Lass.

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ASK YOUR SCOTCH O LASS DISTRIBUTOR ABOUT THE SPECIAL BONUS PREMIUM OFFER DURING VY LACTOS' 30TH ANNIVERSARY SELL A BRATION. SEPT. 15 THROUGH NOV. 29.

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Action Awaited on Rail Rate Proposal

CHICAGO — Eastern groups are now awaiting action which they hope will be taken on their proposal that railroads reduce their rail rates on grain and grain products to help the broiler industry of the East "survive and prosper."

Represented at a recent hearing before the special railroad research committee, Eastern Railroads, were feed, grain, milling and poultry industries.

Since the hearing, the matter has received the attention of the railroad research committee and, according to the committee chairman, the information and views furnished by the eastern groups "would prove most helpful in the committee's effort to determine what sort of a readjustment it should recommend to the eastern traffic executives."

W. H. Day, counsel for the New England Millers & Shippers Assn., said the next step would be action on the committee report by the traffic executives, who can either adopt, reject or modify any recommendations.

If approved, either in whole or in part, any proposal would then be placed upon the docket of the general freight traffic committee. And later, upon request, a public hearing would be held, at which all parties of interest would be given an opportunity to present their views.

Mr. Day said this procedure is an indication that, "under most favorable conditions, it appears doubtful that any rail readjustment can be cleared before the early part of next year."

Mr. Day represented the northeast feed industry at the Chicago hearing.

In his opening statement, he said the segment of the poultry industry represented by those states "encountered such severe competition in the sale of broilers in natural markets that several organizations, representative of the broiler industry, initiated studies to determine what was going on."

He continued: "These surveys not only brought to light the tremendous growth in production recently enjoyed by various southern states, but proved convincingly that the ability of southern competitors to effectuate substantial savings in their transportation charges on inbound grain and grain products, enabling them, costwise, to offer broilers for sale in common markets at prices it has become increasingly difficult for that segment of the broiler industry represented here to profitably meet.

"Obviously, if this condition continues, the inevitable result will be a gradual drying-up of this important phase of our economy to the great detriment of the interests we speak for, as well as the railroads serving the states involved which, generally speaking, haul all of the grain, grain products and feed used by the poultry industry."

J. E. Bressette, director of transportation, Wirthmore Feeds, Inc., Waltham, Mass., has served as chairman of a committee of feed traffic managers representing the eastern feed manufacturing industry. This committee prepared a program "based upon the competitive necessity for a roll-back of existing rates to the ex parte 168 level of rates" and presented this program to the railroad research committee during the Chicago hearing.

Speakers at the hearing, in addition to Mr. Bressette and Mr. Day, were: E. G. Rubinoff, representing the Pennsylvania feed industry, the New Jersey Feed Industry Assn. and the Eastern Federation of Feed Merchants; H. Gordon Burt, Cooperative GLF Exchange, Buffalo, N.Y.; Ralph Schwartz, Beacon Milling Co., Cayuga, N.Y.; James E. Davis, representing the Delmarva poultry industry; R. H. Strickler, representing the Virginia and West Virginia Poultry & Feed Associates; Frank Catanzarite, representing the Buffalo Corn Exchange and the Trunk Line Grain & Grain Products Council.

Brief remarks were made by: G. D. MacLean, Central Soya Co., Ft. Wayne, Ind.; H. N. Johnson, Ralston Purina Co., St. Louis; W. K. Smith, General Mills, Inc., Minneapolis; Arthur Leitnerer, Allied Mills, Chicago; T. Vernon Hansen, Southern States Cooperative Wholesale Services, Baltimore, Md.; John S. Vitz, Quaker Oats Co., Chicago, Ill.; Harold Wright, Spencer Kellogg & Sons, Inc., Buffalo, N.Y., and Austin Carpenter, Eastern Federation of Feed Merchants.

Swift Names Poultry Feed Sales Manager

CHICAGO—Merritt I. Darrow has been appointed Swift & Co. poultry feed sales manager, according to a recent announcement by W. J. Chapin, manager of the company's general feed department in Chicago.

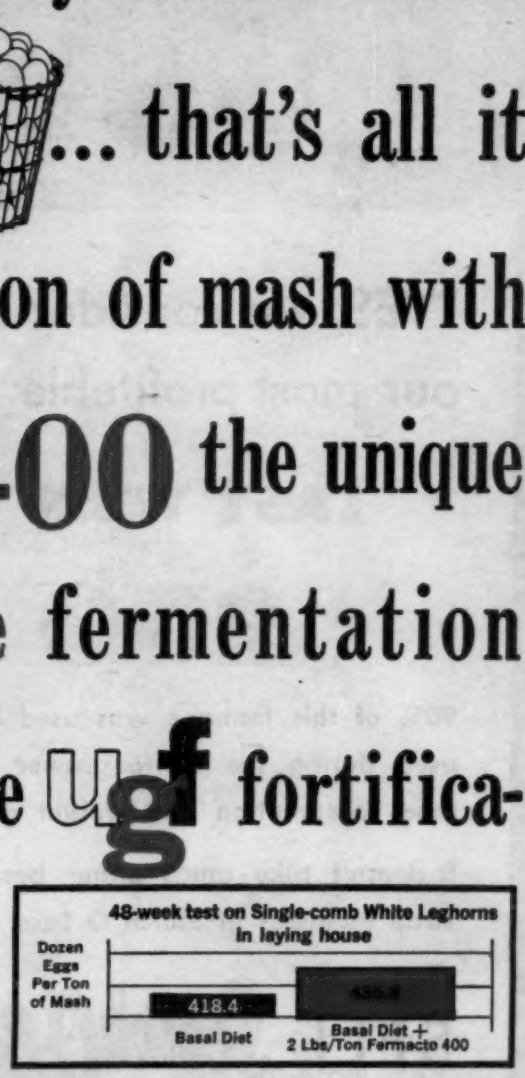
M. I. Darrow

Mr. Darrow has headed the company's feed sales service and research division in the research laboratories. He has experience in poultry and turkey feeding, management and breeding.

He received a B.S. degree in vocational education and poultry husbandry from Michigan State College in 1940 and an M.S. degree in poultry genetics from Kansas State University in 1942.

Following four years research as a member of the poultry department at Clemson College, S.C., and two years service as a naval officer in World War II, he joined Swift's research laboratories in 1946, specializing in hatchery research. He became head of the poultry research division in 1950 and held this post for a number of years prior to being placed in charge of feed sales service and feed research division.

Two bits can get your customers 17 extra dozen... that's all it costs to fortify 1 ton of mash with fermacto 400 the unique blend of multiple fermentation factors for complete ugf fortification. Here's proof...


48-week test on Single-comb White Leghorns in laying house
Dozen Eggs Per Ton of Mash
418.4
Basal Diet
Basal Diet + 2 Lbs/Ton Fermacto 400

And for economical production without *over-fortification* try Borden's 300 the balanced laying mash supplement containing fermacto 400 and all essential micronutrients at about $1.25 per ton on an all-mash basis. For *custom* blended micronutrients, too, contact your Borden's field man.

For complete price schedules and information contact

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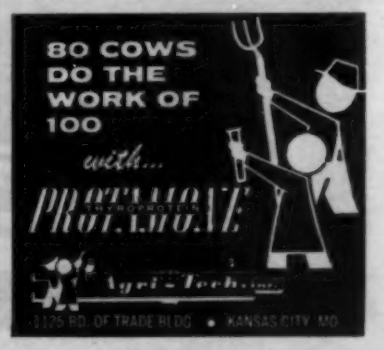

Farm and Feed Salt

Did you know?

- Since 1930, feed industry output as a whole has risen 175%. The industry is now producing at the rate of about 37,000,000 tons per year.
- Labor costs drop as dairy herds grow. USDA research shows farmers annually spend 129 man-hours per cow caring for a 10-cow herd. But a 30-cow herd needs only 80 man-hours per animal. Thus, a herd can be tripled in size, without even doubling labor costs.

4 benefits from using Sterling Blusalt in your fall feeds

Good results from your fall feeds are especially important. When customers see how well your feeds produce *at the start* of the feeding year, they'll rebuy regularly throughout the season.

One of the best ways to insure this heavy repeat business is to use Sterling trace-mineral Blusalt products formulated especially for feed mixing. You'll benefit in four distinct ways:

1. Correct trace-mineral balance. For better on-the-farm results, every Sterling Blusalt product contains the now-known correct amounts of 7 essential trace minerals (manganese, iron, sulfate sulfur, copper, cobalt, iodine and zinc) blended with salt, a natural carrier.

2. Can be used safely with vitamin-fortified premixes and feeds. The mineral compounds used in Sterling Blusalt products, under normal conditions, will not destroy the vitamin potency of the feed into which they are mixed.

3. Cut production costs. Whether you specialize in formula feeds or grist mixes, Sterling Blusalt products permit you to add both salt and vital trace minerals in *one* simple operation. No formula changes needed. Simply replace plain or iodized salt with one of the Sterling feed-mixing Blusalt products.

4. Technical service and research with your salt. At International Salt Company's Animal Nutrition Department, we do continuing research on the proper use of salt and trace minerals in modern livestock and poultry feeding programs. Results of this research are passed on to the feed trade in improved Sterling Blusalt products . . . and in comprehensive technical service on questions of feed mixing and feed formulas.

This research and service is yours to use *now* in preparing your fall feeds...or at any other time. Just ask your Sterling representative, or contact our nearest sales office.

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STERLING SALT

MEMBER AMERICAN FEED afma MANUFACTURERS ASSOCIATION INC.

Protein, Amino Acid Talks Highlight Minnesota Meeting

By ROGER BERGLUND and VERN SUNDEM
Feedstuffs Staff

ST. PAUL—Feed men from Minnesota and surrounding states were brought up to date on protein and amino acids when they gathered for the annual Animal Nutrition and Health Short Course at the University of Minnesota.

One day of the two-day program Sept. 14-15 was devoted entirely to presentations on protein and amino acids by guest speakers and university staff members. The speakers reviewed previous information and presented some recent data on this subject as it applies to poultry, swine and dairy and beef cattle.

Tranquilizers and their use with livestock and poultry also received attention, as did the subject of antibiotic potentiation. Another feature of the program was a panel discussion of communications and cooperation between producers and specialists. (See story on page 10.)

Among the talks were reports showing such things as the possibility of lower protein levels in turkey rations, using amino acid supplementation, and the prospect for lower protein levels in feeds for laying hens. A talk on the Pennsylvania forage testing program as related to protein requirements of dairy cattle indicated that lower protein feeds could be used in many herds if economically advantageous and that the greatest need in supplementing forage is for energy.

Recent work on antibiotic potentiation was outlined, with the report including new information on methods of using low-calcium diets to increase antibiotic effectiveness in chickens. The talks on tranquilizers included information on both the possibilities and limitations in using this type of drug for poultry and livestock.

Reviews of talks follow:

PROTEIN IN FEEDSTUFFS—Dr. R. O. Nesheim, The Quaker Oats Co., Chicago: Dr. Nesheim pointed out the importance of meeting amino acid requirements in formulating feeds for swine and poultry in particular. Since a practical rapid system of assaying each ingredient as it comes in for amino acid content is not available, it is necessary to use average values determined by one's own assays or from published values. Dr. Nesheim went on to show the amino acid compositions of major ingredients.

Dr. Nesheim noted that there may be rather wide variations in composition or availability of amino acids from ingredients. Therefore, certain control procedures are necessary to insure quality ingredients.

He mentioned the following as control procedures found helpful in standardizing quality of protein ingredients:

1. Microscopic inspection—Through proper training quality control personnel can recognize foreign materials and adulteration. Such materials as hoof, hair and horn which will analyze as protein but are not available to the animal can be detected.

2. Urease test—Proper heat treatment will destroy the factor which interferes with utilization of soybean meal. The urease activity of meal is determined and cars found in excess of purchasing specifications are rejected.

3. Undigestible residues—Digesting meat protein sources with the enzyme pepsin and determining the amount of indigestible residue remaining serve as a means of controlling the quality of these ingredients.

4. Biological evaluation of specific ingredients from various sources may be used. For example, feeding blood meals from different sources to rats has shown quite a difference in amount of available lysine. Studies of this type help eliminate quality problems by restricting suppliers to those who consistently provide quality ingredients.

5. Nitrogen solubility tests are used as a means of determining cottonseed meal quality.

6. An approved supplier list is used extensively where there is no specific test which can be run quickly. Where such tests are available, ingredients are bought on specifications and checked before being unloaded.

PROTEIN AND AMINO ACID NUTRITION OF YOUNG TURKEYS—Dr. Paul E. Waibel, University of Minnesota: The future for more extensive supplementation of turkey rations with amino acids seems bright, Dr. Waibel said after outlining some recent Minnesota work. He noted that this practice will reduce the amount of dietary protein required. Also, it will make more room for high energy feedstuffs in the ration.

In the studies presented with young turkeys under the age of 8 weeks, it appears that methionine is the first limiting amino acid and that lysine is the second limiting amino acid. Protein of soybean meal tends to be deficient in methionine but is a good source of lysine. Thus, said Dr. Waibel, where a younger animal is fed a diet higher in soybean protein, one would expect it to be primarily deficient in methionine. However, as the protein requirement of the turkey decreases, it is to be expected that

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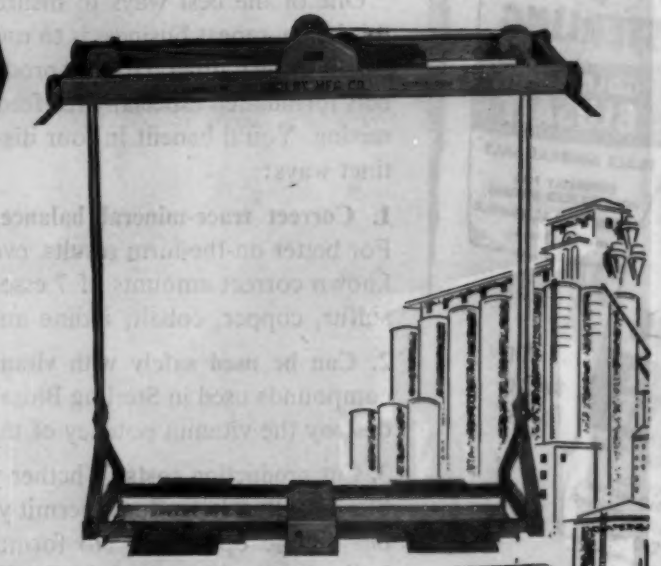

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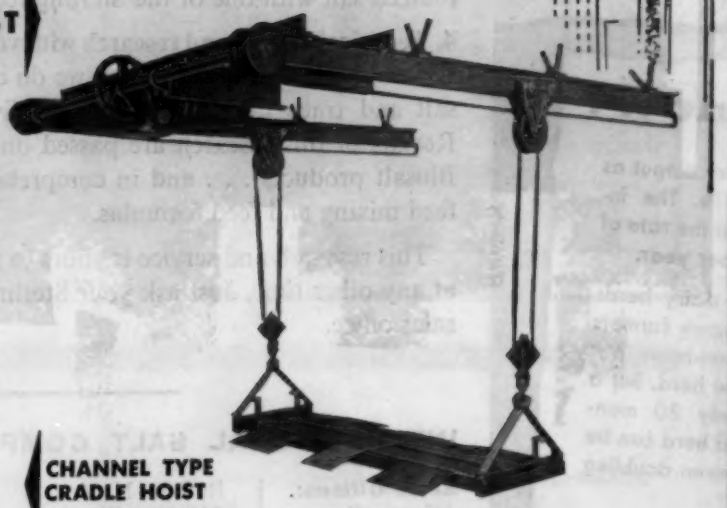

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the deficiencies of corn protein (such as lysine) will come into play. It is probable from these studies that lysine is the second limiting amino acid under these conditions.

Dr. Waibel said the extent to which methionine is a limiting amino acid after the protein requirement for growing turkeys drops under 20% is not answerable by the studies reported, but it is hoped that results of practical growing studies now in progress will provide some information on this point.

Included in the data he presented was information on studies using low-protein rations. In one experiment, turkeys getting 28% protein in a corn-soybean diet from 0 to 4 weeks and 24% protein from 4 to 8 weeks needed only extra methionine. When the percentage was dropped to 24 and 20 for the two periods, the birds needed still more methionine, and adding lysine helped after extra methionine was present.

The possibility of using lower protein rations, with amino acid supplementation, looks encouraging, Dr. Waibel commented. He mentioned in this connection that he understands lysine will soon be selling at about $1 lb.

AMINO ACID AND PROTEIN REQUIREMENTS OF THE LAYING HEN—Dr. M. L. Sunde, University of Wisconsin: Dr. Sunde, describing Wisconsin and other work on amino acids and protein requirements, said it can be predicted that in the near future the protein levels for laying hens will be reduced considerably.

"This," he said, "may have to wait until we know more about the amino acid requirements of the hen so that we can keep up egg weight and feed efficiency, using a combination of protein feedstuffs. Liberal amounts of vitamins will be necessary.

"In the future we may possibly feed hens only corn, minerals, vitamins and either very small amounts of certain amino acids such as arginine, isoleucine, lysine, methionine, phenylalanine, threonine, tryptophan or small amounts of protein feedstuffs such as fish meal, meat scrap, soybean oil meal, or even blood meal.

"The prices of the amino acids in the future will determine their use. The presence of a support price on corn will, of course, affect this considerably. As long as soybean oil meal can be bought nearly as cheaply as corn, formulators of laying feeds will continue to use liberal amounts of soybean meal. Until more definite information is available on the ability of additions of protein to improve the feed efficiency, the present trends will continue."

Dr. Sunde described Wisconsin studies and mentioned other studies in which protein levels less than the NRC recommendations of 15% were satisfactory for laying hens. At the same time, he said, some researchers have reported that protein levels as high as 18% are required for optimum performance.

He also mentioned more recent experiments, some of which show the hen's ability to cope with difficult situations.

It appears that as the energy level is increased beyond certain limits, additional protein is needed. Amino acid additions may enter into this picture.

As yet, Dr. Sunde said, there are not sufficient data available to prove that efficiency at fairly high energy levels isn't improved by higher protein levels. This information is being collected, but only time will tell.

AMINO ACIDS IN CHICK NUTRITION—Prof. David Snetsinger, University of Minnesota: A point has been reached in studies of protein and amino acids for chicks where the establishment of amino acid requirements is no longer the point of primary interest, said Prof. Snetsinger. Currently more attention is being giv-

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◀ The S. & J. Feeding Corporation, Norton, Kansas, has shipped 5,000 Stilbosol-fed steers and heifers to market. "Often, the extra gains and lower costs made the difference between profit and loss," says co-owner Donald Sanderson, shown on the left in his 3,000-ton pit silo.

▲ This bunch of steers and heifers put on more than 3 pounds a day for feeders Charles and Rex Newcom of Benton, Kansas. This father-and-son operation has marketed over 2,000 Stilbosol-fed cattle. "Stilbosol gives us an extra ½ lb. a day on our yearlings," Rex told us, "and cuts cost of gain by 15 to 20%."

Let's look inside 5 different profit-making feedlots

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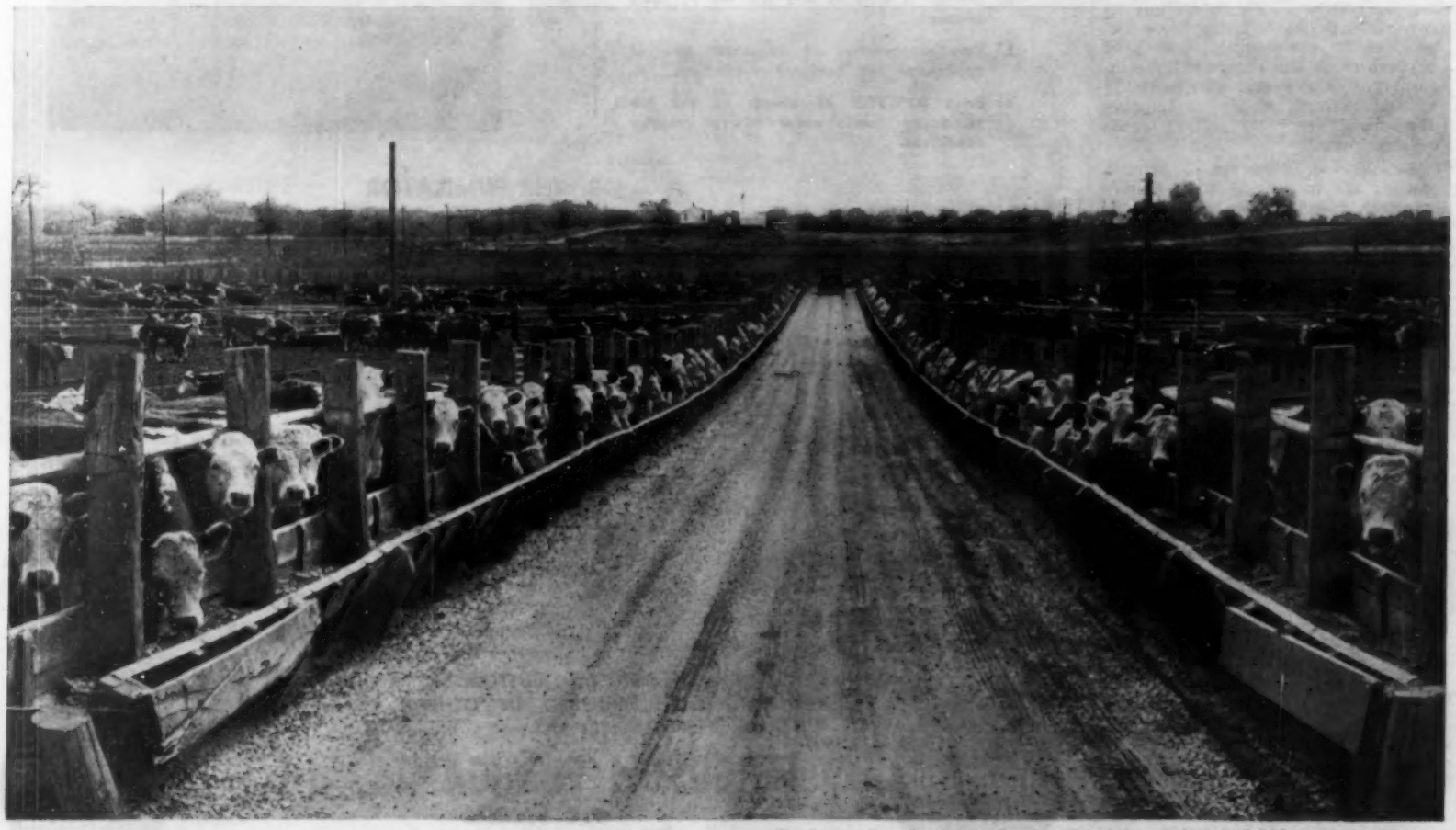

The famous Farr feedlots in Greeley, Colorado, can fatten 10,000 cattle at a time. More than 70,000 steers and heifers were fed full time on Stilbosol rations. The very detailed Farr records showed that Stilbosol cut cost of gain by 12 to 15%.

This is just part of the 70,000-head-annual-capacity Monfort lots near Greeley, Colorado. "Stilbosol is a fine product," says young Kenneth Monfort. "And, after using it on almost a quarter of a million cattle, we're glad to tell that to anyone!"

by Eugene S. Hahnel

Most folks will agree that you can learn a lot from "the voice of experience." To see what we could learn about Stilbosol, we visited people who have had 300,000-head worth of experience feeding it. We have visited farmers, commercial feeders, and custom feedlots—all quality producers of finished beef. Here's what these men had to say about Stilbosol:

"When we went into business, we wanted to do everything as nearly right as possible. One of the first things we listed was to use Stilbosol all the way to market. We're sure glad we did. Our feed-conversion figures on both steers and heifers show that Stilbosol gives us up to ½ lb. extra gain at 15% lower cost." **Donald Sanderson, partner, S. & J. Feeding Corporation (custom feedlot), Norton, Kansas.**

"Before Stilbosol, it cost us 24¢ a pound to make beef. Now, with Stilbosol, we're putting on beef for 20¢ a pound or less. We used to think 2½ lbs. daily gain was good . . . today, we're getting an extra ½ lb. on our yearlings." **Rex Newcom, son, Charles and Rex Newcom Farms (farmer-feeder), Benton, Kansas.**

"Our records prove it pays to feed Stilbosol to both steers and heifers. From our records, we can see the extra gains and greater feed efficiency. With steers, Stilbosol has cut our cost of gain 12 to 15%." **Dean Selleck, Livestock Supervisor and Nutritionist, Farr Farms Company (commercial feedlot), Greeley, Colorado.**

"Stilbosol has cut our cost of producing beef by at least 10% on steers and 5% on heifers. We've already used it on over 200,000 head for the same reason everyone else does . . . to get more high-quality beef at less cost." **Kenneth Monfort, son, Warren Monfort Feedlots, Inc. (commercial feedlot), Greeley, Colorado.**

"I've found that Stilbosol-fed cattle gain a lot more for us, and at less cost. One of the first lots we fed was a bunch of 685-pound Santa Gertrudis heifers. They put on 2.8 lbs. a day for the 91 days they were fed. We'd never seen such gains before!" **Roy Holloway, owner, Holloway Cattle Company (order-buyer and feeder), Wichita, Kansas.**

Roy Holloway, Wichita, Kansas, has fed Stilbosol rations to about 2,400 head a year for the past three years. According to Roy, the cattle shown behind him "have easily gained 3 pounds a day."

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en to understanding causes for variations in requirements. Eventually, it should be possible to predict accurately the amino acid requirements under most conditions through an understanding of amino acid interrelationships and how they may affect requirements.

The speaker noted that factors affecting the requirement for amino acids include age, rate of growth, rate of feathering, protein and energy levels of the ration. Less well known is how certain biochemical interrelationships between amino acids create altered amino acid requirements.

Recently brought to light was another possible amino acid relationship. It appears that the amino acids glycine and possibly arginine exhibit a protective action against excesses of essential amino acids.

FORAGE TESTING AS RELATED TO PROTEIN REQUIREMENTS OF DAIRY CATTLE—Dr. R. S. Adams, Pennsylvania State University: Dr. Adams told of experience in Penn State's forage testing program for farmers which was started last January. The farmer submits samples of forage, and receives an evaluation report and, if requested, a feeding program to meet needs of his cattle. Dr. Adams said it is felt that this type of program offers much from the standpoint of all concerned — the farmer, the feed trade and the university.

He noticed that there has been a great variation in the protein content of forages that have been tested.

A summary of feeding programs developed for farmers so far shows the distribution of protein contents among grain mixtures suggested for milking cows. Dr. Adams said the fact that 65% of the mixtures required a minimum of 12% crude protein or less substantiates the contention that many dairymen tend to over-feed protein. Less than 15% of the mixtures called for 16% protein or higher.

"We feel," Dr. Adams said, "that the large proportion of mixed hays, widespread use of grass silage and fairly heavy grain feeding rates combine to make such a large percentage of low-protein grain mixtures possible.

"The mean protein contents suggested for the grain mixture fed to milk cows, dry cows, heifers over 4 months and young calves were 12.3, 12.4, 12.7 and 17.5%, respectively. These data emphasize that the greatest need in supplementing forage for dairy cattle is for energy. This means that lower protein containing feeds could be used in many herds if economically advantageous.

"Any loss of supplement tonnages from such a trend could be offset to a great extent by striving for heavier grain feeding to enable the cow to more nearly attain her inherited potential. In complete feed areas, lower protein containing feeds would not be of value unless they can be purchased more economically. Feeder demands as well as ingredient prices must be considered. Making dairymen aware of the great need for adequate amounts of energy as compared to protein or fat content of the grain mixture would enable the feed industry to reduce the protein content of many lines of dairy feed whenever ingredient prices allow."

PROTEIN AND AMINO ACID NUTRITION OF SWINE—Dr. D. E. Becker, University of Illinois: Dr. Becker pointed out that it is well to remember that protein feeding standards for swine merely express a quantitative need for protein. All proteins, regardless of their amino acid distribution, will not necessarily satisfy the pigs' need even when fed at the prescribed level. Hence it is essential that swine nutritionists have a complete knowledge of amino acid needs when formulating diets.

As part of his presentation Dr. Becker presented calculated amino acid needs of the weanling pig at various protein levels. The values were based on the principle that the amino acid requirements, expressed as a per cent of protein, decrease in a linear manner as the level of dietary protein increases.

(A discussion of protein and amino acids in swine nutrition is included in an article by Dr. Becker on balancing swine rations in the Aug. 29 issue of Feedstuffs.)

In his talk, Dr. Becker mentioned that it has not been possible to demonstrate that the addition of lysine or methionine helps a corn-soy diet for weanling pigs.

He also presented some information on protein for sows, indicating that protein is not so critical for the sow. A diet that did not support growth of the weanling pig gave good performance when fed to sows in the latter part of gestation.

PROTEIN NEEDS OF FATTENING BEEF CATTLE — Dr. J. C. Meiske, University of Minnesota: Dr. Meiske reviewed various research reports on the protein needs of fattening beef cattle under different conditions.

The amount of protein needed is determined chiefly by the age of cattle fed, amount and quality of forage fed and the grain used in the ration, Dr. Meiske noted. When the forage is of good quality, he said, a simple protein supplement is adequate. When low quality roughages are fed, the use of more complete supplements may be advantageous.

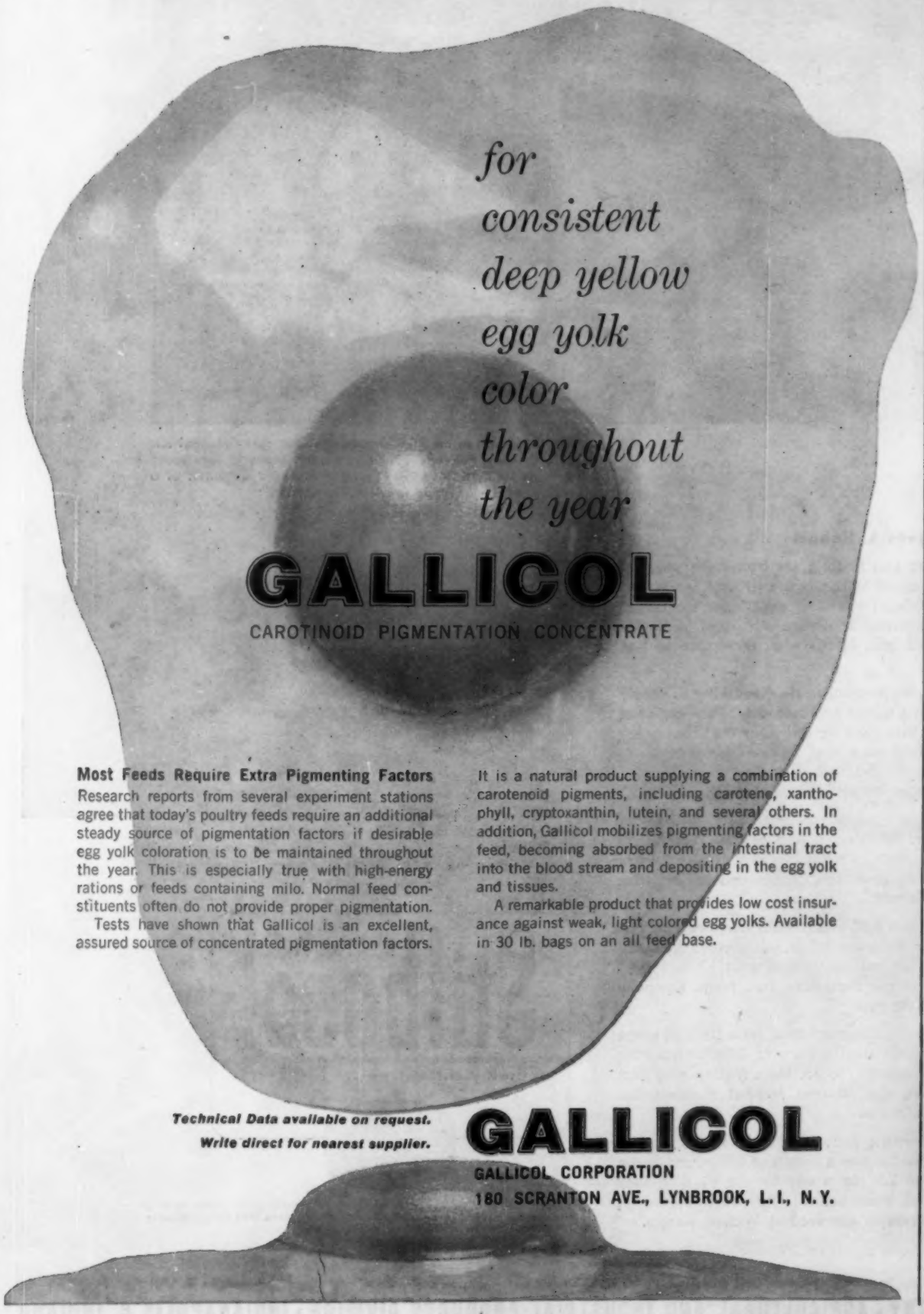
Most research, he pointed out, indicates a 10-11% protein ration is adequate for fattening beef cattle.

He went on to note that more research is required on energy-protein ratios and their influence on gain and carcass quality of fattening cattle.

ANTIBIOTIC POTENTIATION — Dr. Joseph M. Pensack, American Cyanamid Co., Pearl River, N.Y.: Dr. Pensack cited research showing that a reduction in calcium level of the diet resulted in a marked increase in Aureomycin blood serum levels in chickens receiving this antibiotic in their feed. He also noted the work showing that terephthalic acid gave a four-fold increase in serum concentrations and a four-fold increase in therapeutic effect against coccidiosis.

Further experiments, he noted have been made on the effect of calcium levels and salts on Aureomycin serum levels.

Four-week-old chicks were fed a



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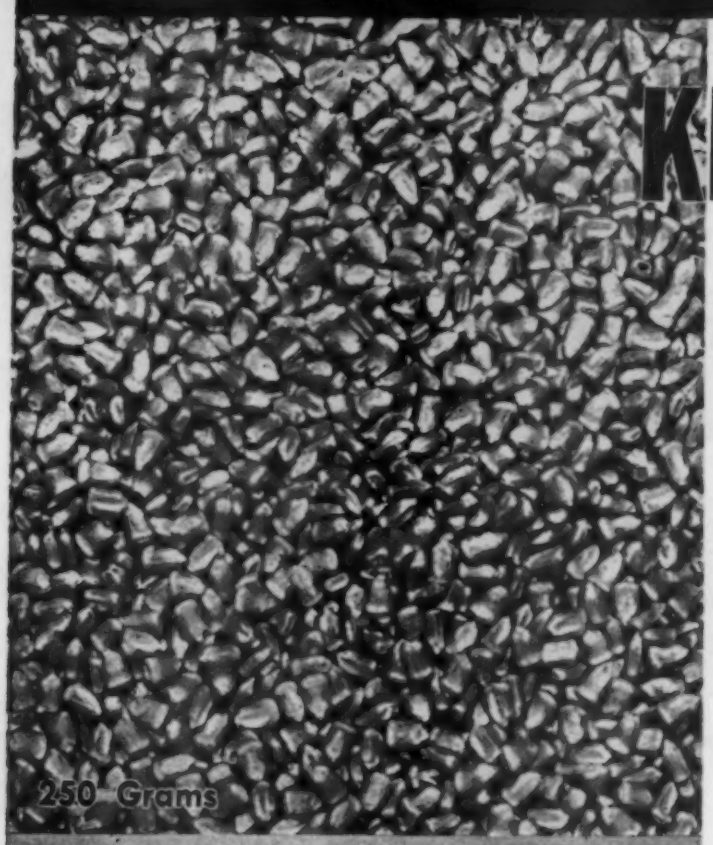

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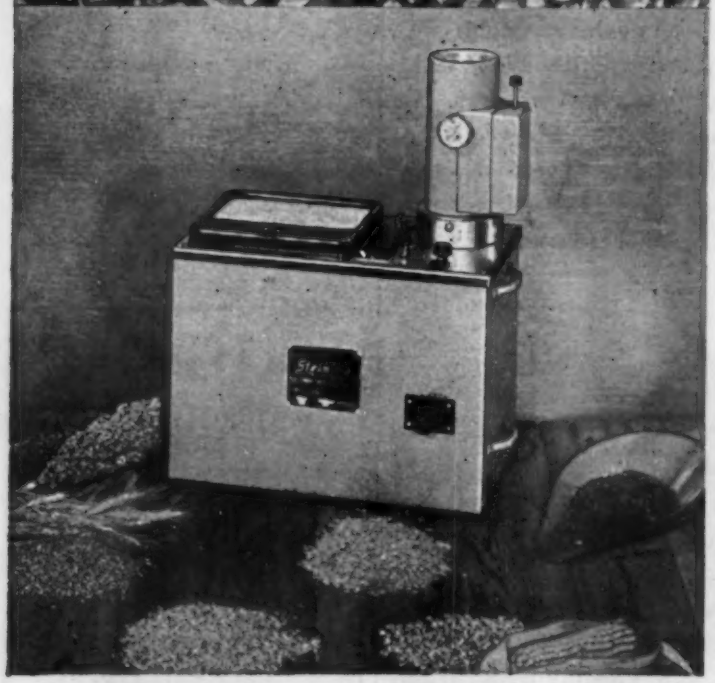

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ration containing 200 ppm of Aureomycin for three days and then the serum level of Aureomycin was determined by cup plate assay. On a low calcium diet (0.35% Ca) an Aureomycin serum level of 0.52 mcg/ml was obtained, while a conventional diet containing limestone and dicalcium phosphate (1.35% Ca and 0.7% P) gave a serum level of 0.09 mcg/ml. Calcium oxide and calcium chloride were similar to limestone in effect. However, when calcium sulfate and phosphoric acid were used as sources of calcium and phosphorus, an Aureomycin serum level of 0.32 mcg/ml was obtained. This was reduced to one half by using dicalcium phosphate in place of phosphoric acid. The addition of 0.5% terephthalic acid to each of these rations produced approximately a twofold increase in Aureomycin blood serum levels.

In addition to terephthalic acid, more than 150 organic acids and sequestering agents have been tested for possible effects in increasing Aureomycin absorption from the intestinal tract, but terephthalic acid remains the potentiator of choice, Dr. Pensack said. He also mentioned studies with various feed ingredients which might possibly affect Aureomycin absorption for various reasons. It was found that there were no effects from levels used of such things as zinc carbonate and zinc sulfate; lactose and dried whey, and added fat.

Data indicate that with no added vitamin D_3 in a corn-soya diet, growth is retarded, mortality is high, bone ash is reduced and Aureomycin blood levels are depressed. Additional work is in progress to determine specifically the role of vitamin D_3 in these processes.

"It was found," Dr. Pensack said, "that four-week-old chicks may be fed diets containing 0.35% calcium for 28 days without any marked reduction in growth. This indicates that a low-calcium diet containing Aureomycin may safely be used as a therapeutic measure for a week without danger of induced calcium deficiency. Since low calcium diets would eventually affect growth rate and bone deposition, a source of calcium would be required which would provide the necessary available calcium and at the same time not interfere seriously with Aureomycin absorption from the intestinal tract. Calcium sulfate appears to have these characteristics. It is less inhibitory to Aureomycin absorption than calcium carbonate and its calcium is as available as the calcium in calcium carbonate for chick and turkey growth and bone deposition."

TRANQUILIZERS — Dr. C. M. Stowe, College of Veterinary Medicine, University of Minnesota: The tranquilizing drugs are a relatively new group of compounds which were first studied and characterized in Europe. The first of these tranquilizing agents, chlorpromazine, is called "Largactel" in Europe (due to its multiplicity of actions in the body) and "Thorazine" in the U.S.

Following the development of chlorpromazine, many similar phenothiazine derivatives were synthesized, and subsequently introduced for use in animals and man. Although phenothiazine derivatives comprise the most important group of tranquilizers today, other compounds, such as meprobamate and RauWolfia derivatives, also have tranquilizing effects.

Dr. Stowe discussed use of tranquilizing agents in two categories—therapeutic uses in animals and nutritional use. By far the greatest effect of therapeutic treatment is on the central nervous system. The treatment produces a mild sedation without the animal's losing consciousness.

Certain peripheral effects with some tranquilizers include aid in lowering blood pressure, slowing heart beat, reducing muscle tension and lowering blood sugar or glucose content.

Toxic effects, which are not common but have occurred with use of chlorpromazine, are jaundice and a decrease in number of white blood cells. Animals fed low levels at regular intervals instead of one large dose did not show as many toxic effects.

Regarding nutritional use, Dr. Stowe said there seems to be little doubt that some of the compounds produce a growth response in cattle. The mechanism of this response is poorly understood.

He said there are still many conflicting reports in beef and sheep tests concerning gains and tranquilizers. Minnesota tests have shown no significant toxic effects but more testing is needed, he commented.

TRANQUILIZERS IN POULTRY FEEDING—Dr. Ray Burger, University of Minnesota: Dr. Burger noted that members of the class of drugs called tranquilizers—mainly reserpine and phenothiazine derivatives—have been studied for effect on production under normal and adverse environmental effects. However, the dosage rates of interest are generally below those used for sedative purposes, use of the term tranquilizer as applied to these drugs may be misleading. The protective action that the drugs may have is apparently based on a reduction of activity of the sympathetic nervous system.

Dr. Burger summarized various findings as follows:

Growth: Low levels of reserpine and chlorpromazine, but not meprobamate, have promoted a slight increase in growth under normal conditions in chickens and turkeys. The effect seems to be more pronounced at high environmental temperatures,

(Turn to page 65)

A nurse nudged us to action

"We ought to tell *all* our people about U.S. Savings Bonds as regularly as we tell them about safety," said our nurse in the first aid room. "Many of the men and women who come in here don't even know we have a Payroll Savings Plan."

We had to admit she was right. And when we called our State Savings Bond Director, he agreed with her. He helped us set up a company-wide information plan that tells every employee —frequently—about the advantages of buying U.S. Savings Bonds systematically.

That was just a few days ago. Today we have the largest employee participation we've had since the mid-forties. People always welcome a chance to make use of this sound and simple savings plan. Today there are more payroll savers than ever before in peacetime. Look up *your* State Director in the phone book or write: Savings Bonds Division, U.S. Treasury Dept., Washington, D. C.

FEEDSTUFFS

THE U. S. GOVERNMENT DOES NOT PAY FOR THIS ADVERTISEMENT. THE TREASURY DEPARTMENT THANKS, FOR THEIR PATRIOTISM, THE ADVERTISING COUNCIL AND THE DONOR ABOVE

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SIOUX CITY, IOWA
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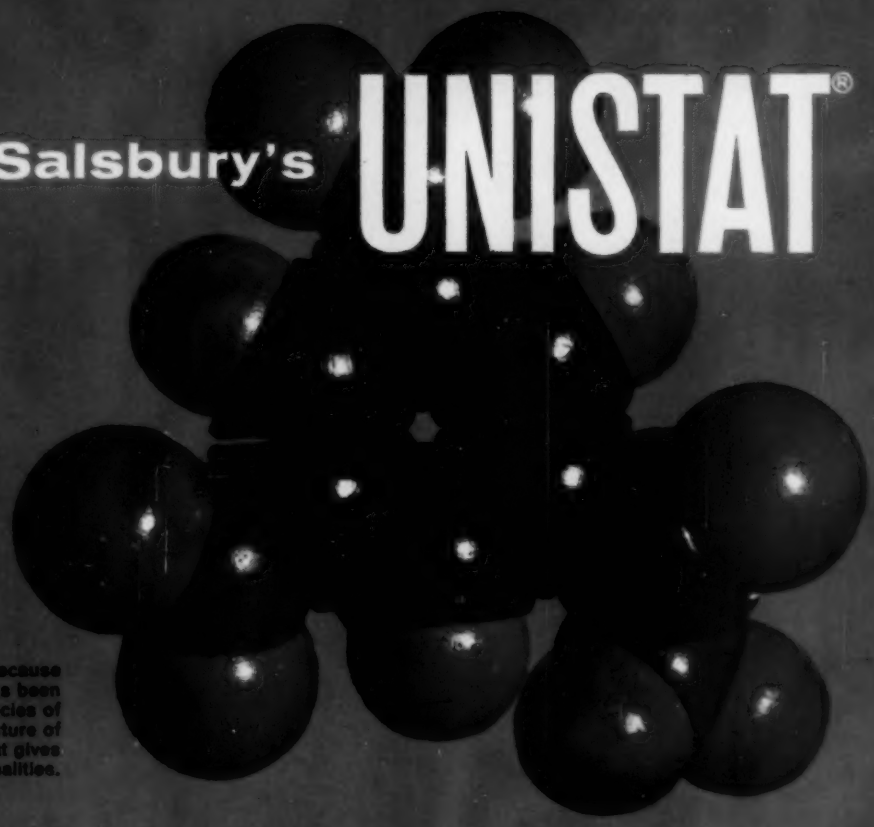
INCREASE YOUR TONNAGE

with additives that increase feed efficiency

Feed manufacturers and dealers alike are vitally interested in feed products that not only improve poultry and swine health but do so at a *substantial profit brought about by increased feed efficiency.*

This brochure describes several such products from Dr. Salsbury's Laboratories, where the practical side of farming is of primary concern. Their use can increase your tonnage, by giving your feeds new profit benefits.

Dr. Salsbury's UNISTAT®



Unistat contains a combination of active ingredients because no compound, complex or other single chemical entity has been found to be equally effective against all important species of coccidia in chickens. Shown above is the molecular structure of *3, 5-Dinitrobenzamide*, the unique new chemical that gives Unistat its superior coccidiostatic qualities.

Unistat is a yellowish, free-flowing powder that blends easily and is compatible with all normal feed ingredients. It provides a "balanced protection" against the economically important forms of coccidiosis. Chemically, Unistat is a unique combination of active ingredients—drugs chosen for their specific effect in complementing each other. They work together as a team to provide far more disease protection and profit benefits than any single drug, chemical complex or compound. Unistat is recommended for **coccidiosis prevention, growth stimulation, improved feed efficiency** and **better pigmentation** in chicks and growing chickens. Best of all, its low cost and small dosage (1 lb. per 1,000 lb. of an all-mash ration) combine to make it one of the least expensive coccidiostats. Follow directions fully.

For Chicks,
Broilers, Growing Chickens
PREVENTS COCCIDIOSIS BEST PLUS OTHER PROFIT BENEFITS

- **INCREASES FEED EFFICIENCY**
- **STIMULATES GROWTH**
- **PERMITS IMMUNITY TO DEVELOP**
- **IMPROVES PIGMENTATION**

Grower experience is what counts, where a feed additive is concerned. That is, growers must *know* that Unistat not only controls coccidiosis but does so at *a substantial profit to them.* Then, and only then, should you use it in your feeds. In the last 12 months, Unistat has been fed to *over ½ billion birds.* The following letters are typical of many being received at Dr. Salsbury's Laboratories from large commercial poultrymen (names on request).

"*Our feed efficiency has improved more than 10 points over last year and coccidiosis is no longer a problem. We feel that the coloring, finish and quality of our birds has been greatly improved with Unistat. We are now using it in our ration 100%, but we field-tested a number of coccidiostats before making this change.*" (This grower raises a million birds a year).

"*This is the first flock of broilers I have ever grown without trouble from coecidiosis. They also had better color. I am completely satisfied with Unistat.*" (This flock averaged 43 lb. of gain per 100 lb. of feed).

"*Since switching to Unistat, I have had less trouble with coccidiosis, better weights and better feed conversion. My broilers show a definite improvement in color and quality. And medication costs have been less since I began using Unistat than for any comparable period since I've been in business.*" (This operator feeds out an average of 80,000 birds a week).

These Grower Experiences Are Why —

MORE AND MORE FEED MANUFACTURERS ARE SWITCHING TO UNISTAT

GET THE FULL STORY ON UNISTAT

Write, wire or phone for your copy of Dr. Salsbury's Feed Manufacturer's Guide on Unistat. It will tell you more about this new approach to coccidiosis control. Or, ask for a Dr. Salsbury representative to call and personally answer your questions about the use of Unistat in chicken starter, grower and broiler feeds.

Dr. Salsbury's 3-NITRO® for Chickens, Turkeys, Hogs

POWDER

STIMULATES GROWTH, IMPROVES FEED EFFICIENCY, GIVES GROWERS MORE FOR THEIR FEED DOLLAR

Increases egg production

Every year sees a new all-time high in the number of commercial flocks that get 3-Nitro in their feed. Why? *Because experience and tests have shown its use to be highly profitable.* Tests have also shown that laying flocks average a dozen or more extra eggs per hen per year—and on ¼ lb. less feed per dozen eggs—when they get 3-Nitro in all their mash. Broilers have more "bloom"... layers have better health and appearance. There is less morbidity and flock depletion. 3-Nitro is safe, palatable, stable, and compatible with normal feed ingredients. (Follow 3-Nitro directions completely.)

All these . . . are reasons why growers say, "*No other feed ingredient does so much—and costs so little—as 3-Nitro*".

Reduces backfat

Swine raisers recognize 3-Nitro as a most valuable feed additive. Tests at Iowa State have shown that growing pigs average 16% heavier—*on 5% less feed*—with 3-Nitro in their ration. Fewer runts and better finish mean higher market prices. Recently, another important benefit was discovered: further research at Iowa State indicated 3-Nitro significantly reduces backfat, thus improving carcass leanness and enabling farmers to greatly speed up the production of meat-type hogs. With the entire swine industry working toward the leaner pork demanded by consumers, this new benefit is attracting even more farmers to 3-Nitro.

FEED MANUFACTURER'S GUIDE No. 13A answers many questions about the use of 3-Nitro in swine and poultry feeds. Write, wire or phone for your copy. Or, ask for a Dr. Salsbury's representative to call and discuss feed-formulating problems with you personally.

NEW HISTOSTAT®-50

PREVENTS BLACKHEAD BEST IN TURKEYS AND CHICKENS

Histostat-50 is a new formulation using the same proven active ingredient—4-nitrophenylarsonic acid—from the chemical family of compounds universally known for their growth-stimulating properties. Its new formulation permits the active ingredient to do its work more completely and efficiently—especially as birds approach market age or maturity. Histostat has been proven on millions of birds . . . to be the most effective blackhead preventive on the market today. When fed to healthy poults in brooder houses or on range, Histostat-50 provides unequalled protection against this No. 1 turkey disease. Follow directions fully.

Promotes better finish, higher market value

Winning 59 awards at the National Dressed Turkey Show is a remarkable achievement for birds fed Histostat. Of greater importance, however, is the **extra profit** which Histostat helps turkey raisers make. This makes champion birds where it counts—in the profit department. Histostat-50 not only prevents blackhead for pennies a bird but it *helps improve finish and carcass quality so birds bring more on the market.* That's why more and more growers are asking for Histostat-50 in their turkey feeds.

There's more to the Histostat-50 story

. . . than we can tell here. Write, wire or phone for your copy of Feed Manufacturer's Guide No. 16. Or, ask for a Dr. Salsbury representative to call and personally answer your questions about using Histostat-50.

- **PALATABLE.** Birds don't back away from Histostat-50.
- **ECONOMICAL.** Even on a continuous program, Histostat-50 costs only a few cents a bird—2 turkeys saved will pay for medication for 100.
- **COMPATIBLE.** Can be used with normal feed ingredients.
- **STABLE.** Histostat-50 is a chemically stable powder—will not lose its effectiveness during handling or storage. Unaffected by pelleting or other feed ingredients.

Dr. Salsbury's POLYSTAT®

A BROAD-RANGE HEALTH PROTECTANT FOR CHICKENS AND TURKEYS

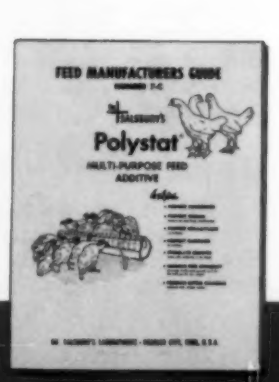
- **STIMULATES GROWTH**
- **INCREASES FEED EFFICIENCY**
- **PROTECTS AGAINST COCCIDIOSIS (all types), LARGE ROUNDWORMS, TAPEWORMS, TURKEY BLUECOMB AND HEXAMITIASIS**

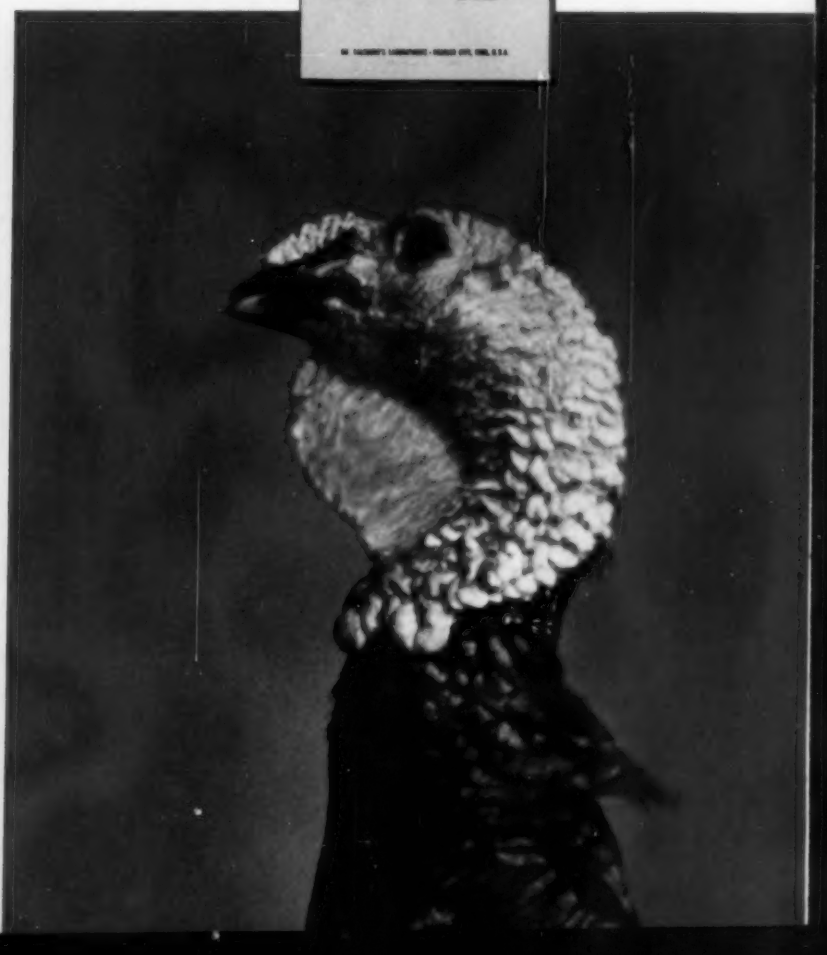
Has Other Values

Polystat is a multi-purpose feed additive specially developed to provide today's poultry with the above much-needed benefits. Chickens and turkeys that get Polystat continuously in their feed grow faster, do better. This is important, but it is not the whole story. Polystat has other values. For example, Polystat reduces the amount of subclinical (inapparent) disease and minimizes the effects of stress. There is less mortality, less sickness and better all-around health and appearance, when feeds contain Polystat. In addition, Polystat eliminates the need for a separate coccidiostat, a separate wormer, and a separate growth stimulant in the feed. Follow directions.

Yes, there are many reasons for including Polystat in your chicken and turkey feeds. However, they all add up to the fact that today's poultrymen demand feeds that prevent a wide variety of diseases and conditions. **Polystat** is such a product . . . **a broad-range health protectant** that *cuts production costs, builds better birds, increases profitable returns.*

WRITE, WIRE OR PHONE . . . for more information about how to use Polystat to build superior poultry feeds. Ask for Feed Manufacturer's Guide No. 7-C. Or, ask for a Dr. Salsbury's representative to call in person.





Dr. Salsbury's WORMAL

THE ONLY COMPLETE POULTRY WORMER

Takes the guesswork out of hit-or-miss worming

Millions of dollars will be lost by growers next year, due to many species of poultry worms. Stopping roundworms is only a small start. A complete worm-control program requires a wormer that "gets all 3"—**tapeworms** and **cecal worms** as well as **large roundworms.** Unfortunately, no single drug is equally effective against these 3 major types of worms. And few growers are skilled at posting or diagnosis, so that the kind of worms might be incorrectly identified. Thus a grower runs the risk of wasting money by using the wrong worming compound. All this spells out the need for a complete, broad-range wormer—one that gets all 3 types of worms. Wormal is such a wormer. *It is the only wormer that gets all 3*—takes the guesswork out of worming!

Other advantages of Wormal

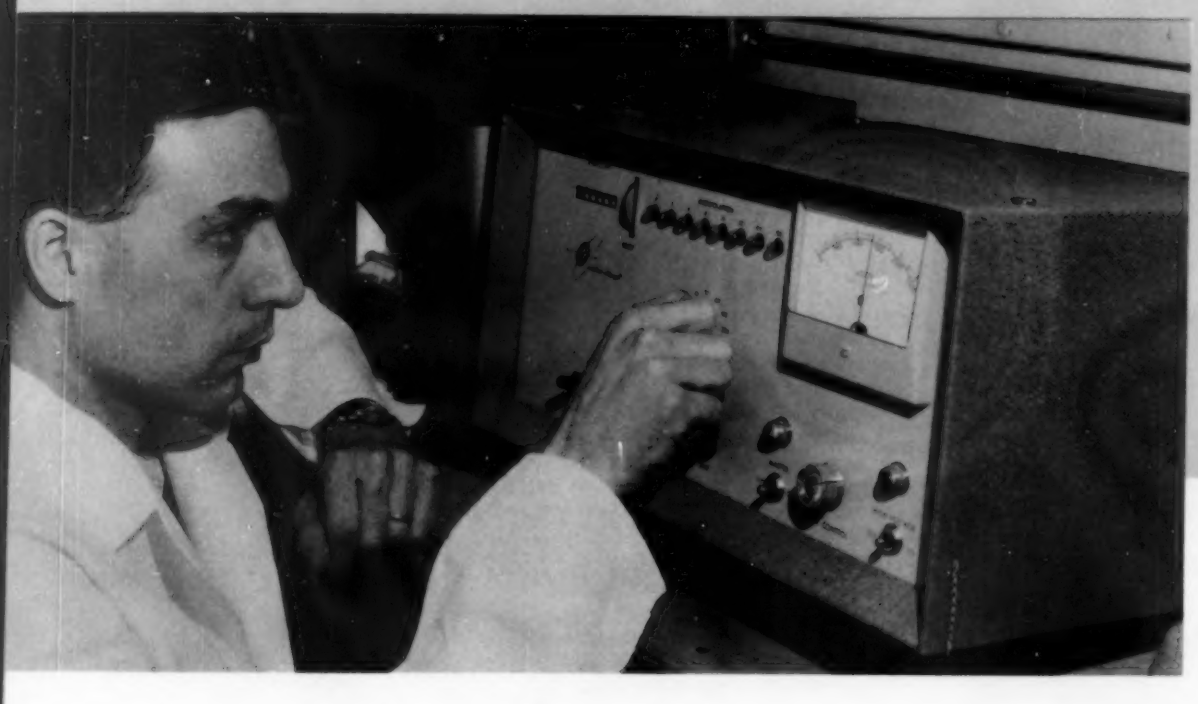
1. **Easy to handle.** Wormal Granules are crumblized for easy mixing or may be added to feeds prior to pelleting.
2. **Easy to feed.** Wormal fits most feeding programs—all mash, or controlled mash-and-grain.
3. **Wormal is safe,** causing no shock or setback.
4. **Palatable.** Feed mixtures containing Wormal are readily eaten by chickens and turkeys.
5. **One standard dose.** One pound of Wormal treats 250 birds of any age. Mix at rate of 20 lb. per ton of mash.

FOR...COMMERCIAL FLOCKS, UTILITY FLOCKS, AND TURKEYS

FIND OUT NOW... more about Dr. Salsbury's Wormal. Write, wire or phone for Feed Manufacturer's Guide No. 17 and 12-page booklet (shown here) on "How to make and merchandise your own worming feed for poultry". Or, ask that a Dr. Salsbury representative call in person. He'll be glad to show you how the new Wormal promotion plan can help you sell more feed.

SEARCHING...

for better ways to serve the Feed, Poultry and Swine Industries



Strong as they are today, tomorrow's feed, poultry and swine industries will be even more efficient, due to around-the-clock research now going on in laboratories and experimental farms all over the country. Modern feed-additive health products are constantly being improved or replaced by new ones. Competition is a fact of life—in our free economy. Thus the search goes on, because today's best is never quite good enough for tomorrow.

As you know, thorough testing is a vital part of all new product development. Shown above is an atomic scaling unit—part of the apparatus used at Dr. Salsbury's Laboratories for the radio-active tracer testing of drug residues. Such techniques are typical of our never-ending search for better products and for better ways to serve those industries whose destinies we share.

No attempt has been made in the preceding pages to "cover all bases" on the subject of increasing feed tonnage through the use of superior feed additives. It is too big a job. Besides, most feed-formulating problems can best be solved on an individual basis only.

We invite your inquiry concerning any of our many products and services. We hope to serve you better . . .

Dr. SALSBURY'S LABORATORIES
Charles City Iowa

NATIONWIDE SERVICE TO THE FEED INDUSTRY

but in reality, the drug is reducing the amount of growth depression.

Egg Production: Most reports indicate either no effect, or a slight depression, in rate of lay under normal conditions. Generally, administration in the summer months has not been beneficial. In one report, the incidence of cage fatigue was reduced.

Dissecting Aneurysms: Reserpine has been administered to turkey flocks suffering from "hemorrhaging disease" at levels known to depress blood pressure in turkeys. Two reports indicate that the drug may have significant therapeutic value.

Mortality: The tranquilizers have been reported to reduce mortality occurring at high temperatures. Under normal conditions, no effect has been noted except one report on the rearing of pheasants, where cannibalism and feather pulling were reduced.

Miscellaneous: Reserpine and chlorpromazine have been shown to reduce heart rate under high temperatures, an indication that the protective action is based on reduction of activity of the sympathetic nervous system. Reserpine has also been reported to depress thyroid weights, serum and egg yolk cholesterol and the incidence of atherosclerotic plaques in laying hens.

USE OF TRANQUILIZERS IN LARGE ANIMALS—Dr. W. H. Hale, Chas. Pfizer & Co., Inc., Terre Haute, Ind.: In application to large animals, Dr. Hale noted, use of tranquilizers may fall into two categories—nutritional use and application in veterinary medicine.

One area in veterinary use is for reduction of shrink in shipment of cattle. This has received considerable publicity, but reports in scientific journals are scanty, Dr. Hale said. This area for use of veterinary tranquilizers is very promising, he said, but many problems such as tissue residue, dose level, etc., remain.

More information is available on the so-called nutritional use of tranquilizers. In this area the tranquilizer is added to the ration or supplement of the animal at a level below which gross signs of tranquilization or sedation occur. The desired effect is an increase in gain and an improvement in feed efficiency. Results with swine and poultry have not been too promising. The most beneficial effect appears to be with feed lot beef cattle and sheep.

"With cattle and lambs," Dr. Hale said, "hydroxyzine has been more extensively investigated than other tranquilizers. A recent summary of available cattle trials shows that hydroxyzine (Tran-Q) improved gains more than 8%, with a 7% improvement in feed efficiency. With lambs the increased gains have amounted to 10%, with a 7% improvement in feed efficiency. The testing to date has been with feed lot cattle on rations of varying energy levels. The data do not indicate an energy effect.

"Carcass grades and dressing percent have tended to be improved. The growth promoting effect is in addition to that obtained with stilbestrol. . . . The recommended level of feeding is 2.5 mg. per steer daily."

Dr. Hale said the reasons why Tran-Q exerts such a growth promoting action when fed in such small quantities are not clear. It is conceivable, he said, that small doses exert a protective effect against environmental stress which does not present itself in the animal's gross behavior or otherwise. Conceivably, also, the action is mediated through the nervous system to the organs of digestion and assimilation.

Chicago Office Moves

CHICAGO—The Chicago offices of the Day Sales Co. have been moved to 2937 W. Touhy Ave., reports Max R. Springer, president.

District manager in charge of the Chicago office is D. James Dowd, who handles sales in northern Illinois, northern Indiana, southern Wisconsin and eastern Iowa.

The Day Sales Co. is the sales subsidiary of the Day Co., Minneapolis, Minn., which manufactures dust control and bulk material handling equipment for industry.

FIRE DESTROYS STORE

PRINEVILLE, ORE.—Fire recently destroyed the Prineville Feed Co. store and warehouse located here. Russ Vincent, owner of the business, stated that flames were first noticed in the building to the rear of the store section. A brisk wind fanned the flames, with exploding insecticide containers adding to the blaze. Cause of the fire or amount of loss was not immediately determined.

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PEERLESS ALL-PURPOSE ROLLER MILL
CRIMPS-CRACKS SMALL GRAIN without dusting
GRANULATES EAR CORN without dusting
The Peerless "All-Purpose" Commercial Roller Mill answers the growing demand for a mill that will crimp-crack all small grains, as well as ear corn. More and more livestock and poultry men are demanding coarser, dust-free feed because it's more palatable, more digestible, less wasteful and improves feeding results 10% to 20%.
Write today for complete information about Peerless Commercial Roller Mills
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You can always count on fast turnovers and good profits when you stock and display PILOT BRAND Oyster Shell. That's because poultrymen everywhere have learned that hens produce more eggs with stronger shells when PILOT BRAND Oyster Shell is in the hoppers.

This year 'round, nation-wide demand—constantly stimulated by advertising in leading farm and poultry journals and on 70 radio stations—makes your selling job easier. It pays to push PILOT BRAND—the largest selling eggshell material in the world.

Order from your distributor or write to us

Oyster Shell Products Company
Mobile, Alabama

PILOT BRAND OYSTER SHELL FOR POULTRY

All-Plant vs. Plant and Animal Protein Hog Ration Study Reported

WOOSTER, OHIO—A study of all-plant vs. plant and animal protein rations for hogs was summarized by Dr. Howard S. Teague, animal researcher, Ohio State University, recently in Ohio Farm and Home Research.

Portions of his report follow:

To determine whether or not nutritional deficiencies would appear under long term dry lot feeding, a three-year generation study was conducted at the Ohio Experiment Station.

Two groups of 10 weanling Duroc gilts selected from the station herd served as foundation animals. These first generation females and all future generations were confined to concrete floored pens throughout the three year period. Information was obtained on a total of 78 litters (755 pigs farrowed) including the farrow of 12 litters of fourth generation pigs.

Two Rations

One of two types of complete rations was fed to each group of animals throughout the study. Rations containing only plant materials with supplemental protein supplied as soybean oil meal were fed to one group, while the second received rations in which soybean oil meal and meat and bone scraps each supplied an equal amount of protein. The protein, mineral, vitamin and antibiotic content of the two types of rations was equalized. Growing-finishing pigs were self-fed and breeding stock was hand-fed.

A portion of the gilts in each breeding group (usually four) was slaughtered 55 to 57 days after breeding. The reproductive organs were recovered which permitted examination of the developing litter and determination of ovulation rate. The remaining six were permitted to farrow.

The overall performance of animals on both types of rations was satisfactory. However, by some measurements there was evidence that ration composition influenced reproductive function.

Rate of growth and efficiency of feed conversion of the growing finishing pigs during the three-year period were essentially the same on both ration treatments and did not decline in later generations. Pigs fed the all-plant rations gained an average of only 0.03 lb. per day faster and required 3 lb. less feed per 100 lb. of gain than those pigs fed mixed protein feeds.

The original (1st generation) females were permitted to farrow three times. Second generation gilts for continuation of the study were selected from their first and third farrowings. The third generation gilts farrowed in the spring of 1958. The study was terminated when these litters were weaned.

Reproduction

Several measures of reproductive performance were obtained. Breeding performance, as indicated by estrual behavior and settling rate, appeared normal throughout the study. There was a tendency in five of the seven farrowings for gilts and sows fed all-plant rations to have a longer gestation period—the difference ranging from as little as 0.1 of a day to an average of 1.9 days longer.

Prolonged Gestation

The only instance of what was considered abnormal farrowing occurred when the first group of second generation gilts farrowed in the spring of 1957. The females which were fed the all-plant rations had a prolonged gestation period, and only one gilt of the six farrowed a normal litter. This litter was farrowed on the 118th day of gestation.

Three of the six gilts in this group were carrying litters of 10 dead pigs. Two which failed to farrow at the normal time were sacrificed for autopsy. In all cases it appeared that prenatal death had occurred near the 90th day of gestation. The remaining four sows were farrowed a second time in the fall and no evidence of prenatal death was observed.

Second generation gilts which had been fed the mixed protein rations performed normally in both farrowings. Third generation gilt performance and the four generation pigs farrowed by them appeared normal in all respects.

Birth Weight

The type of ration fed appeared to have had some influence on birth weight. For the seven farrowings, average birth weight for pigs in litters farrowed by females fed all-plant rations ranged from 2.25 to 2.74 lb., while the weight of pigs in litters from females fed both plant and animal protein ranged from 2.46 to 2.91 lb. However, at 21 days the number and weight of live pigs were not consistently greater in either group.

Summary

The results of this study suggest that rations, containing either all-plant or plant and animal materials, may be adequate for the continuous feeding of breeding stock kept in confinement.

Furthermore, since there was not a progressive decline in either growing or reproductive performance when swine were fed in dry lot for as many as four generations, this method of management may prove practical for the swine producer.

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NEW Daffinaire SYSTEMS

move up to 60 tons per hour at lower cost!

Check the advantages of these HIGH-DENSITY SYSTEMS:

ONE-WAY (Pressure Discharge)

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TWO-WAY (Vacuum Pick-Up PLUS Pressure Discharge)

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CONSTANT AIR VOLUME
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MANEUVERABILITY
ENGINEERED COMPACTNESS
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Mobile Two-Way

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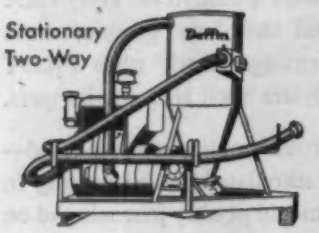
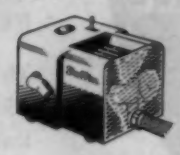
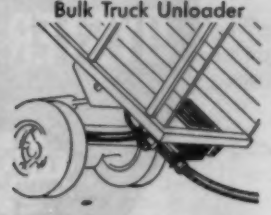


Portable One-Way



Bulk Truck Unloader



Take a close look at the new Daffinaire Conveyors! Available in stationary, portable, road-mobile, and bulk truck unloader models.

Daffinaire Conveyors are compact, rugged, constant-volume materials handling systems for swiftly moving all dry-free-flowing materials. Constant material uniformity is maintained in transit through system by the combined actions of automatic pressure control and the special Daffin volumetric feeder.

FIND OUT HOW PROFITABLY DAFFINAIRE HIGH-DENSITY SYSTEMS WILL FIT YOUR NEEDS!

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Builders of the World-Famous Daffin Packaged Feed Plants, Pneumatic Conveying Systems, Pelleting Machines, Batch Mixers

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DAFFIN MANUFACTURING COMPANY, 3291 NORTH PRINCE STREET, LANCASTER, PENNSYLVANIA

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Your broilers come from ARBOR ACRES females!

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For prices and the data that establish the present leadership of this product in stability under heat, humidity, the rigors of pelleting, and the presence of minerals, write ***Distillation Products Industries***, Rochester 3, N. Y. Sales offices: New York and Chicago • Charles Albert Smith Limited, Montreal and Toronto.

leaders in research and production of vitamins A and E

DPi

Also ... distilled monoglycerides
... some 3700 Eastman Organic Chemicals for science and industry

Distillation Products Industries *is a division of* **Eastman Kodak Company**

Suggestions on Feed Service Provided at Maryland Event

By WADE RICE
Extension Poultryman

COLLEGE PARK, MD.—New records in attendance and participation were set at the Feed Service Conference for Poultry, Dairy and Animal Husbandry Service Men at the University of Maryland Sept. 9-10. More than 200 persons attended.

Dr. A. O. Kuhn, vice president of the university, cited cases of unfilled job opportunities for trained young men and women in modern agribusiness, and the constant drop in enrollment of agricultural students at our colleges and universities creating a widening gap between supply and demand for qualified students.

J. H. Bethards, Carmean Hatchery, Laurel, Del., presented a two-week check list for equipment and management to insure low mortality and maximum growth in starting broiler chicks. These covered details of water and feed supplies and control of the environmental factors of sanitation, spacing, temperature, capacities and records. Comparisons of results on farms were cited in mortality, average bird weight, and returns for several of these factors.

Area Competition—Dr. Max Beall, professor of economics at the university, pointed out that freight rate differentials on corn and soybean oil meal from Decatur and other midwest points place Maryland-Delaware poultrymen at a feed-cost disadvantage compared to producers in Georgia, Alabama, and Mississippi. This differential is due to current water versus rail rates. In terms of 1958 Delmarva broiler production, this disadvantage totaled nearly 4 million dollars to Delmarva. When freight rate alone is considered, the South has a feed cost advantage of ½ to 1¢ lb., ready-to-cook basis. Lower rates, alternate route use and increased utilization of locally grown corn and soybeans offer means of wiping out this cost disadvantage.

It was pointed out that Delmarva feed manufacturers produced nearly a million tons of feed in 1958, in operating at 87% of full capacity on a one-shift basis.

Broiler production in the southern areas has increased much more rapidly than in Delmarva and Maine in recent years, and this rapid increase has been an important factor in the depressed broiler market situation of the past two or three years.

Dr. N. V. Helbacka of the Maryland poultry department presented data showing Maine, Delmarva and Georgia processing plants as being more efficient than those in other areas, due to volume of birds processed per plant. Maine and Delmarva produced the heaviest birds which also contributes to a lower processing cost per pound of chicken. Recent research data was presented showing that 11-week-old birds at heavier weights than the birds currently marketed at 9 to 10 weeks of age might offer better returns to both producers and processors in Delmarva in respect to production and processing costs per pound and percentage yield (dressing %).

Carcass Condemnations — Carcass condemnations at processing plants, a current item of interest to most producers, was discussed in detail by Dr. L. M. Greene of the University of Delaware with specimens of each important class being exhibited to the audience. Removal of condemned parts and other procedures of inspectors were traced and inspection forms were exhibited and discussed. A management program for broilers designed to reduce condemnation losses was presented.

Coccidiosis—Dr. G. A. Marsh, Ohio State University, stated that no class of drugs has been called upon to do as much for the poultry producers as have coccidiostats. He pointed out that all coccidiosis control methods present management headaches. Thus, the errors in diagnosis often present complications, in that the presence of the organisms in themselves is not necessarily proof that coccidiosis is an important problem in a specific case.

Low level infections are often overemphasized as a problem when they may actually be an asset to control. Basic differences between results in laboratory research, field trials, and commercial use of a drug should be recognized and evaluated. Greater attention to basic management details and use of sound judgment rather than use of coccidiostats as whipping boys for the failure of other disease control measures are a current need of producers, he pointed out.

Sulfa Drugs—Toxic effects of sulfa drugs upon poultry suffering from an infection are obviously greater than in a normal healthy flock, it was pointed out by Dr. George P. Faddoul, University of Massachusetts, Waltham, Mass. The toxic effects of sulfa drugs at therapeutic levels can now be detected soon after administration is started. Thus the level of dosage in any flock should be determined in respect to the state of health of the flock. It has been demonstrated that intermittent administration of sulfaquinoxaline at the 0.04% concentration in drinking water and 0.1% level in feed have not been tolerated satisfactorily in some chicken flocks. Therefore, when therapeutic levels of a sulfonamide are indicated, it should be administered for a period no longer than is absolutely necessary.

Egg Integration—Dr. R. L. Baker, economist of Pennsylvania State University, pointed out that open market pricing of eggs has failed to solve many problems of quality control and seasonal distribution of production. Thus price fluctuations due to variations in supplies and quality continue to plague the industry. Conventional methods of production and distribution also result in higher production and marketing costs than occur in integrated operations.

Contract marketing and quality-control programs on a specification basis now operate in all sections of the U.S. Contract production of eggs now operates largely in southern states, where the eggs belong to the program operation. In owner-integrated operations, including cooperatives, producers own both production and marketing facilities. The shorter channels of operations in contract and integrated operations serve to de-

Hog feeding comparisons show...

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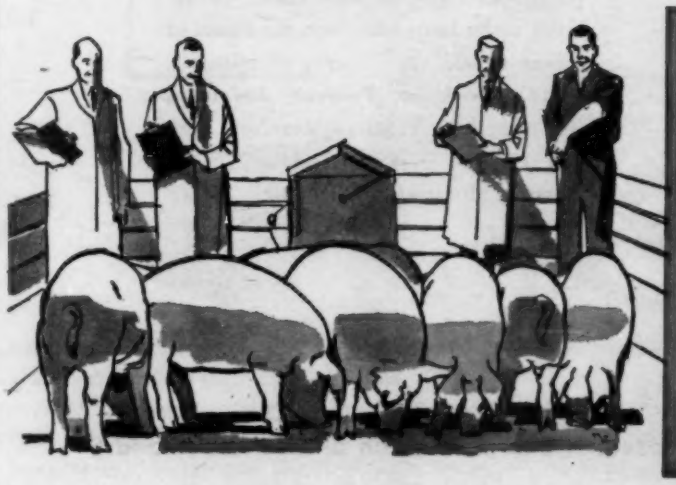

Feed	Feed per pound of Gain	Feed Cost per 100 lbs. Gain
Basal Ration	3.8 lbs.	$9.76
Basal Ration plus 3-nitro-4-Hydroxy-phenylarsonic acid	3.47 lbs.	$9.45
Basal Ration plus 4 antibiotics*	3.33 lbs.	$9.33
Basal Ration plus Arsanilic Acid	3.32 lbs.	$9.06

(Jordan, C. E., J. H. Conrad and W. M. Beeson, Purdue University Agr'l Exp. Station Mimeo A.S. 238 (Final Report), November, 1958.

*5 Gms. Chlortetracycline, 7.5 Gms. zinc bacitracin, 2.5 Gms. penicillin and 5 Gms. oxytetracycline.

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crease overhead, selling and other operating costs, Dr. Baker pointed out.

Slides where shown of various operations where mechanical feeding, gathering, sizing, packing, and handling of eggs greatly decreased labor costs, speeded up the whole operation and resulted in a more uniform quality egg.

Merchandising—Dr. Ken V. Naden, agricultural counsel of the National Association of Food Chains, pointed out that uniform quality cartoned eggs are a recognized "must" in food merchandising today. In order to deliver a satisfactory egg value to the consumer, close coordination and greater efficiency are needed in all stages of production, processing, and merchandising. In this respect many production decisions are in reality marketing decisions.

Food chains today are giving eggs, poultry and meat both long and short range merchandising attention. In this program it is the consumer who sets the pattern and tempo of the studies and conclusions. Convenient packages of uniform quality have become a standard demand of consumers, and as a consequence services to provide such packages have increased in costs far greater in recent years than the bulk product despite rising labor costs on all sides.

In recent egg market price crises, food chains responded with egg promotions in a big way. Price incentives, posters, companion food tie-ins and other features, in cooperation with PENB, NEPPCO and other industry organizations, were employed with the result that egg sales rose which served to cushion the falling egg market. Such short-range programs are closely correlated to the long range merchandising programs.

Poultry producers must realize that other food products such as beef, pork, lamb and milk have organized industry groups who are promoting greater efficiency in production, processing and merchandising. These, too, have their eyes upon the same market basket and pocketbook which all food interests are aiming at. Thus, continued research and improved efficiency are the only means of maintaining one's position in this competitive situation.

Poultry "Stump the Experts" Panel—In the Poultry "Stump the Experts" Panel, it was brought out in response to questions from the audience:

—by Dr. Faddoul that

(1) Continuous use of coccidiostats does tend to produce resistant strains of a given species of coccidiosis.

(2) Coccidiosis treatment should be based on accurate diagnosis, not the mere presence of coccidia in a bird.

(3) Damage by sulfa toxicity may be more or less irreparable in a bird due to its short life. However, encouraging liquid intake will help reduce the residue concentration of sulfas.

(4) Distinguishing between hemorrhagic syndrome lesions and sulfa toxicity is not easy even in a laboratory. This approach along with complete case history offers our principal guides however.

(5) Sulfaquinoxaline toxicity is lower than sulfamethazine at the same levels of dosage.

—by J. H. Bethards that

(1) "Green" chicks can be put under hovers with safety when conditions are just right.

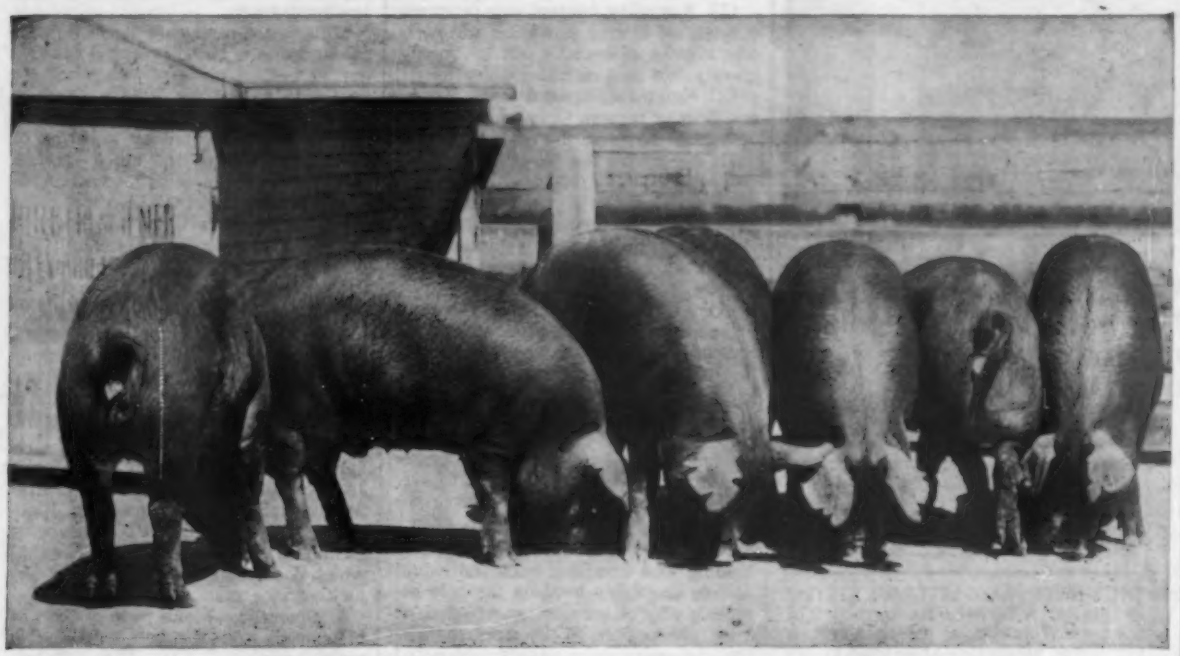
(2) Houses and floors should be washed as well as cleaned and disinfected between each lot of broilers to control disease.

—by Dr. L. M. Greene that

(1) Poultry is not condemned on the basis of intestinal worms in the intestines. Intestines are not opened.

(2) Corn and mineral oil treatment

MARYLAND SPEAKER—William D. Moore, Jr., director of feed distribution, Southern States Cooperative, Richmond, Va., was one of the speakers at the University of Maryland's Feed Service Conference for Poultry, Dairy and Animal Husbandry Service Men. Mr. Moore explained the "ingredients" in doing a good service job.



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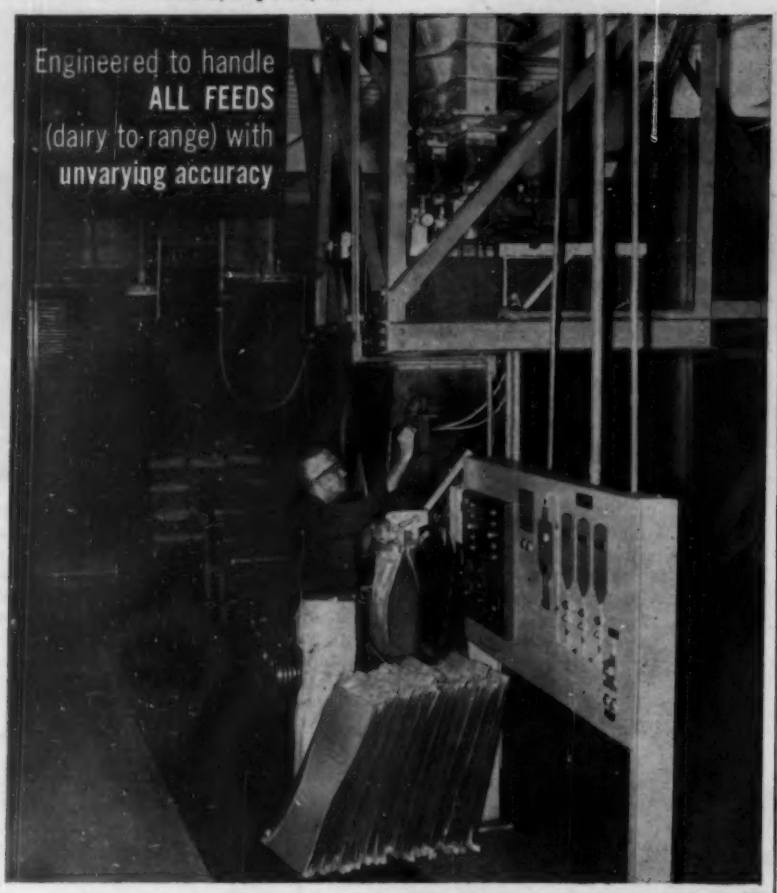

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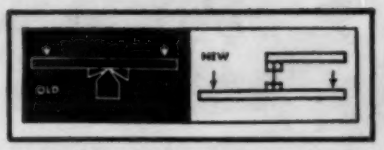

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MARYLAND PANEL—These men answered animal and dairy husbandry questions in a "stump the experts" session at the Feed Service Conference for Poultry, Dairy and Animal Husbandry Service Men at the University of Maryland. Left to right are (all on the University of Maryland staff unless otherwise indicated): R. D. Appleman; Dr. G. J. Plumer, Maryland Livestock Sanitary Service Laboratory; Boyd T. Whittle; Dr. R. F. Davis; Dr. Ken F. Warner (moderator); Dr. E. C. Leffel, Dr. J. E. Foster; William D. Moore, Southern States Cooperative, Richmond, Va., and Dr. E. P. Young.

for hemorrhagic disease of chicks have little if any value.

—by Dr. R. L. Baker and Dr. N. V. Helbacka that

(1) A quality control egg program consists of charts providing for periodic checks at various points for egg quality, not just refrigeration alone.

(2) Egg prices are not made by any one firm or person. Only certain firms or agencies report the price at which deals are made. New York egg prices do not materially influence egg prices on West Coast or in the South. Market deals in terminal markets in those areas are a bigger factor than New York quotations.

—by Dr. C. S. Shaffner that

(1) Air changes in poultry houses in relation to disease and other factors are currently under study by different agencies and experiment station engineers.

—by J. H. Bethards and others that

(1) Current feed cost per pound of broiler on a basis of 2.40 feed conversion is estimated at about 10½ to 11¢. This is feed cost only in Delmarva.

Dairy and Animal Husbandry—Stressing the importance of properly feeding and handling each individual cow in the dairy herd as the only effective way of securing most efficient milk production, R. D. Appleman of the university dairy department noted the IBM methods now employed in D.H.I.A. herd books in comparing performance of cows in different herd groups. Levels of feeding account for nearly all differences in milk production, a recent study of D.H.I.A. records on 90 Maryland farms showed.

Guides for concentrate feeding of cows on pasture and not on pasture were presented, showing greater returns for heavier concentrate feeding.

Dr. R. F. Davis, head of Maryland's dairy department, pointed out that ketosis of dairy cattle is best prevented through a well balanced feeding program prior to calving. This means adequate feeding of both forage and concentrate to have the cow in good flesh at calving. Treatment of acute cases include injection of cortisone or its derivatives, the injection of glucose solution, or feeding of propionate or lactate salts in the grain mixture.

Milk fever is caused by low blood calcium and is best prevented by adding 20 million units of vitamin D to the daily ration for 7 days prior to anticipated date of calving. Acute cases may be treated by injection of calcium salts into the blood stream. Udder edema, involving various degrees of swelling of the udder at calving time, appears to be an inherited characteristic. Level of feeding apparently is not involved. Massage of the udder and affected areas is the best currently known treatment.

Mastitis, an infectious disease of the udder, is not directly due to feeding. Good management of the udder and good sanitation in the handling of it are the best treatment and control measures, Dr. Davis reported.

Feed Service—William D. Moore, Jr., director of feed distribution for Southern States Cooperatives, Richmond, Va., listed SERVICE as being composed of seven "ingredients," which contribute to the success of any feed service man as follows:

1. Sincerity—Make people like and believe in you through evidence of your sincerity.

2. Effort—Work to keep abreast or ahead of your field. Being up-to-date and sound is essential to be a leader.

3. Reputation—A good reputation comes slowly. An adverse one can come quickly. If you don't know the answer, admit it. If you make a mistake, admit it and take steps to correct it.

4. Vision—Look ahead to next year and five years hence. Help your producers to plan ahead.

5. Integrity—Always be truthful—even if it means you lose the business on any occasion. Don't misrepresent your product or give misleading information on profits or other competing products.

6. Courage—Under unfavorable

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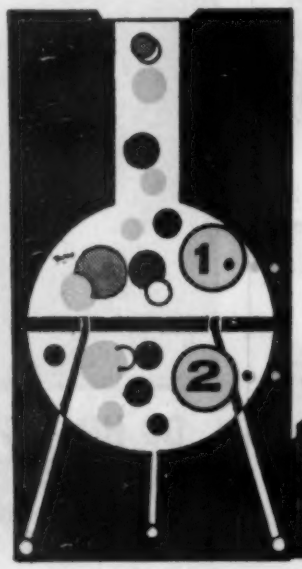

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Taken together these "ingredients" spell SERVICE, your responsibility to livestock and poultrymen today and tomorrow.

Swine Feeding—Dr. E. P. Young of the University of Maryland animal husbandry department pointed out that present knowledge of swine nutrition enables the feeding and growing of swine in confinement possible.

However, growing swine in dirt or concrete lots calls for close attention to providing the necessary nutrients in rations and a critical eye on management practices.

Under confinement, protein requirements decrease as pigs grow and research to date suggests the following levels: Up to 35 lb., 18%; 35-37 lb., 16%; 75-125 lb., 14%; and 125 lb. to market, 12%.

In confinement, mineral supplementation of rations is a critical factor. Salt at 0.5% of total ration or a trace mineralized salt will supply salt and trace mineral needs.

Parakeratosis can be controlled by addition of 50 parts per million of zinc to ration. Addition of 0.65% of calcium for pigs up to 100 lb. and 0.5% for 100 lb. to market is desirable. Similarly, 0.45% and 0.33% of phosphorus should be added, respectively, for the foregoing sizes of hogs. Vitamin supplementation for confinement rations is necessary as compared to pasturage.

Highly virulent infectious diseases are often a problem in confinement raising of swine. Sanitary precautions including avoidance of continual use of facilities should be considered.

Space requirements of 8-10 sq. ft. for 50-100 lb. hogs; 10-12 sq. ft. for 100-150 lb. hogs; and 15 sq. ft. for 150 lb. to market per animal should be observed.

Dairy and Animal Husbandry "Stump the Experts" Panel—In questions to this panel, it was pointed out:

—by Dr. G. J. Plumer that

(1) Mastitis is not known to respond to any drug treatment.

—by Robert D. Appleman that

(1) IBM analysis of D.H.I.A. records is improving constantly and more information on the accuracy of feeding recommendations for each cow will be available in another year or so.

(2) Most profitable level of milk production is the maximum a cow will produce consistent with maintenance of her health and the economics involved.

—by Dr. R. F. Davis that

(1) A cow can safely be fed her regular ration in the amount her interest indicates following calving. Only special cases should call for special diets.

—by Drs. E. C. Leffel and R. F. Davis that

(1) Barley can be fed at rate of 1,000 lb. or more per ton to beef and dairy cows so long as it is properly supplemented.

—by Boyd Whittle that

(1) Liquid feed for beef animals containing alcohol and molasses may be fed to advantage under special conditions, but normally may prove more expensive than conventional dry rations composed of basic grains and supplements.

Future of Small Farm Poultry Flock Reported

DES MOINES, IOWA—The future of the small farm poultry flock was described encouragingly by Francis Kutish, extension economist of Iowa State University, at the convention of the Iowa Poultry Hatchery Assn. recently.

He said flocks of 500-750 laying hens have proved to be a good investment in the Midwest, and that this section can still compete with the big, highly specialized egg-producing enterprises on the east and west coasts.

The important thing is to produce high quality eggs, and then find a good market for them, he said.

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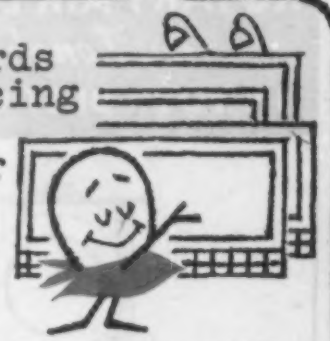

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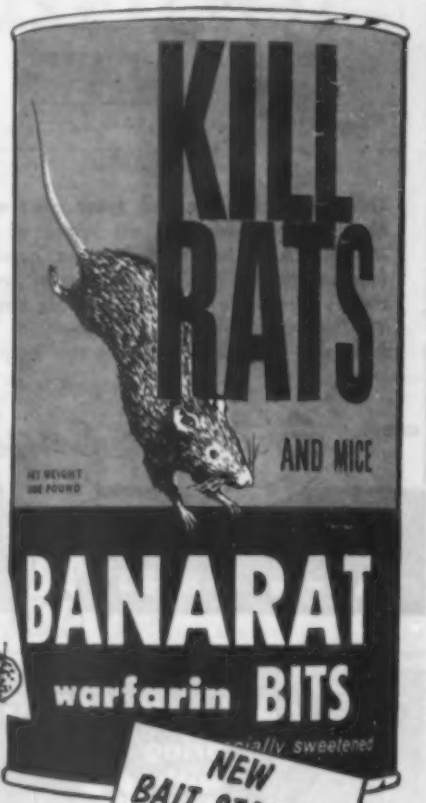

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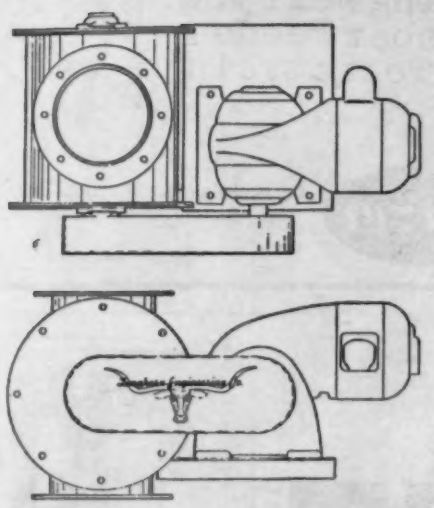

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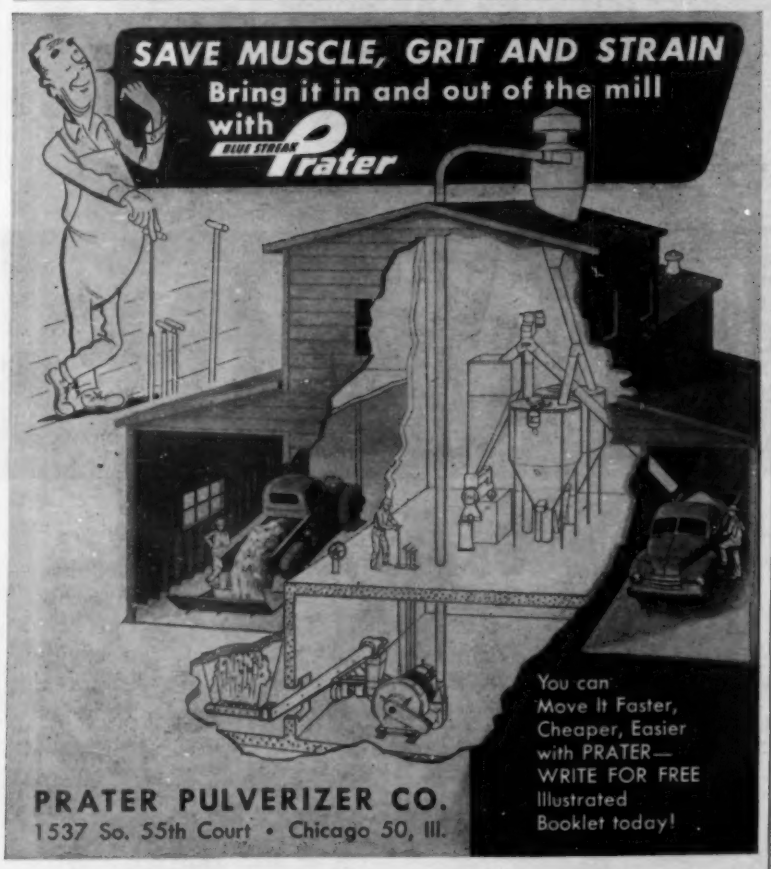
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BULK STATION—This new bulk station is nearing completion at the Madison, Wis., warehouse of the Master Feed & Seed Co., distributor for McMillen Feed Mills. The bulk station will enable the Master Feed & Seed Co. to service dealers within a 90-100 mile radius around Madison with concentrates and complete feeds in bulk. The feed will be unloaded and conveyed to the elevator leg via a self-cleaning drag conveyor. The feed will be distributed from the elevator head to the bins via gravity and loaded into trucks through the weigh-larrie scale.

Swisher Holds School For Affiliated Mills

DANVILLE, ILL. — The Swisher Feed division of the William Davies Co., Danville, recently held a "feed school" for the personnel of feed mills operating under the Swisher franchise.

Owners, managers and sales personnel attended the two-day meeting at Danville. The school covered several phases of nutrition in livestock and poultry, feed merchandising, grain bank operations, and the selling and advertising of Swisher feeds.

Major participants of the school were W. L. Lavery, Swisher general manager, Robert L. Freeman, sales manager, and Henrie L. Miller, advertising manager.

Participants of the school received all the material presented in a 150-page bound book. Mr. Lavery announced that the school will be an annual and possibly semi-annual affair for the Swisher organization and its affiliated manufacturing feed mills.

The Swisher feed service plan involves supplying the franchised mills with "super concentrates," which are mixed and added to soybean meal and locally-grown grain, which in turn are sold under the Swisher name. An expanded sales drive of the organization has recently resulted in the acquisition of 10 additional feed mills, according to a company announcement.

Rath Packing Makes Feed Plant Addition

WATERLOO, IOWA — The Rath Packing Co. is spending $650,000 for an addition to its feed plant here, according to Howard H. Rath, chairman of the board.

In a recent letter to stockholders accompanying the firm's 25¢ dividend check for the fourth quarter, Mr. Rath also said that farmers have "responded enthusiastically" to the firm's swine demonstration farm, which was set up to improve hog breeding and "demonstrate better management and production methods."

Rath's new chemicals division, established three months ago, will develop and market a line of industrial chemical and bulk pharmaceutical and biological products, according to Mr. Rath. The division will also market dried blood which will be processed in a $300,000 plant being constructed.

DO HIM A FAVOR HE'LL REMEMBER

Remind him to order Morton T-M Salt. See page 35.

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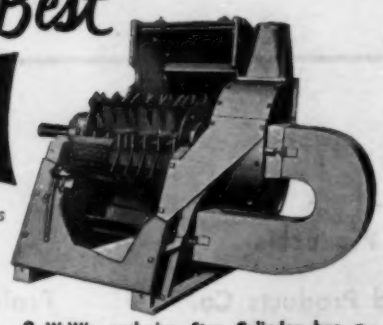

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MARKET IMPACT—Speakers at the Chicago Board of Trade seminar had an opportunity to discuss the probable market impact of the government's current, all-time-high estimate of corn production just as information about the crop was rolling in on the news ticker. Pictured from left to right are Paul L. Farris, professor of agricultural economics at Purdue University; Henry H. Bakken, professor of agricultural economics at the University of Wisconsin; Roger Gray, associate economist, Food Research Institute, Stanford University; T. A. Hieronymus, professor of agricultural marketing at the University of Illinois; Warren W. Lebeck, secretary, Chicago Board of Trade, and Allen B. Paul, economist with the U.S. Department of Agriculture.

Chicago Board of Trade:

Seminar Examines Futures Trading, Past, Present and in the Future

By F. C. BISSON
Feedstuffs Special Writer

CHICAGO—A Futures Trading Seminar, organized by the Chicago Board of Trade Sept. 10-11, sparked interesting discussion among the participants, with marketing specialists presenting original thinking and research on the past, present and future of commodity markets. The seminar was the 12th in the series of similar events aimed at broadening the knowledge of marketing among educators in the U.S. and Canada, particularl those engaged in the agricultural economics and business administration fields.

Like all of its predecessors, this affair was planned and conducted under the direction of the board's educational advisory committee consisting of six educators of national reputation from as many colleges and universities from all over the continental U.S.

Serving during the past year, the current committee is headed by Paul L. Farris, professor of agricultural economics, Purdue University. Associated with him are: James R. Enix, extension wheat marketing specialist, Oklahoma State University; T. A. Hieronymus, professor of agricultural marketing, University of Illinois; Taylor W. Meloan, chairman, department of marketing, transportation and foreign trade, University of Southern California; Charles W. Miller, director, department of marketing Marquette University, and Ross Milner, extension economist, grain marketing, Ohio University.

Welcoming the four speakers, 12 discussants and some 40 participants, was Robert C. Liebenow, president of the Chicago Board of Trade with Prof. Miller in the chair. Speaker at the opening session and presenting a formal paper entitled "Historical Evaluation, Theory and Legal Status of Futures Trading in American Ag-

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ricultural Commodities" was Prof. Henry H. Bakken, department of agricultural economics, University of Wisconsin.

"The original idea of contracting to buy or sell goods for future delivery," said Prof. Bakken, "was not conceived in the New World as some sources would have us believe. Recent findings by economic historians indicate that the practice was in vogue as early as the 12th century."

Touching on the subject of settling of contracts in a manner other than making or accepting delivery of the commodity contracted for, the Wisconsin educator said: "From the very inception of futures contracts, the two parties to the transaction reserved the right to close out the deal to a third party. The right of substitution was a matter of convenience and necessity to uninterrupted trade and it is to be distinguished from mere assignment. As time went on, it became more and more evident that dealings in futures contracts were primarily settled not by delivery of the physical product, but by cash differences as in the case where two hedgers' contracts, either by design or by accident, offset each other."

Concluding his presentation, Prof. Bakken said that "the truth of the matter is that the act of hedging sets off one transaction against another with the net result of 'zero ownership'. Hedgers transfer the risk of ownership to others. The real function of commodity exchanges is that of pricing, publicizing and transferring legal rights and titles to the things bought and sold. Speculators are the ones who perform those essential tasks by assuming the risks with their own resources, based on their own judgment."

Discussants who commented on the various points stressed in the Bakken presentation were James S. Schonberg, vice president, Uhlmann Grain Co.; Prof. John Sharp of Ohio State University, and Prof. John D. Black, Harvard University.

The second seminar session opened with Prof. Enix in charge of the meeting. He introduced the speaker of the afternoon, Dr. Roger Gray, associate economist, Food Research Institute, Stanford University, whose paper was titled, "The Importance of Hedging in Futures Trading and the Effectiveness of Futures Trading for Hedging."

Plunging into his subject, Dr. Gray directed the consideration of his listeners to the matter of the futures open interest and the significance of its seasonal and year-to-year patterns. Expatiating further on the same general subject, Dr. Gray stressed the presence of long-term trends that can be shown to rest upon hedging use. He went on to say: "The long term decline in wheat futures business at Minneapolis relative to Kansas City since about World War I reflects the changing relative importance of the two as milling centers."

He also said that when "soft wheats became the effective delivery at Kansas City in 1953 and the millers 'fled the market,' this illustrated vividly the importance of hedging. Only by a change in the contract to require a hard wheat delivery were the hedgers persuaded to return and preserve this market from complete disuse."

Paying his respects to what has happened in many markets today, which has not been brought about by the markets themselves nor is it to their liking, Dr. Gray said that he was referring to the general decline in the levels of futures business at all contract markets. "This decline," he said, "stems directly and primarily from the reduced need for hedging occasioned by the extensive stock-carrying engaged in by an agency of the federal government. Recent increases in business owing to the 'subsidy-in-kind' program provide additional evidence that it is the demand for hedging which determines the level of use of the futures markets."

Becoming more specific in his rationalization of the immediately preceding conclusion, he showed what had been happening during certain periods in the coffee market at New York, in the wheat futures at Minneapolis and Kansas City, in the Kansas City bran futures market and even in the Chicago soybean futures pit during a period when it was in what Dr. Gray referred to as its "rapid growing phase."

Referring specifically to the Kansas City bran market, Dr. Gray said that with negligible professional speculation, hedging there became highly speculative. He said, "Flour mills that sought a hedge during the years of high bran prices encountered reluctant futures buying on the part of merchants and feed mixers. Subsequently, these same mixers and feed merchants, in seeking to hedge sales or requirements at lower prices, encountered reluctant selling by the millers. The millers' reluctance finally become complete, so to speak, in that they abandoned the bran market.

"While the immediate cause of the death of the bran futures market may be written in the coroner's report as 'the miller's departure,' still the underlying cause was the poor general state of health of a market that lacks speculation."

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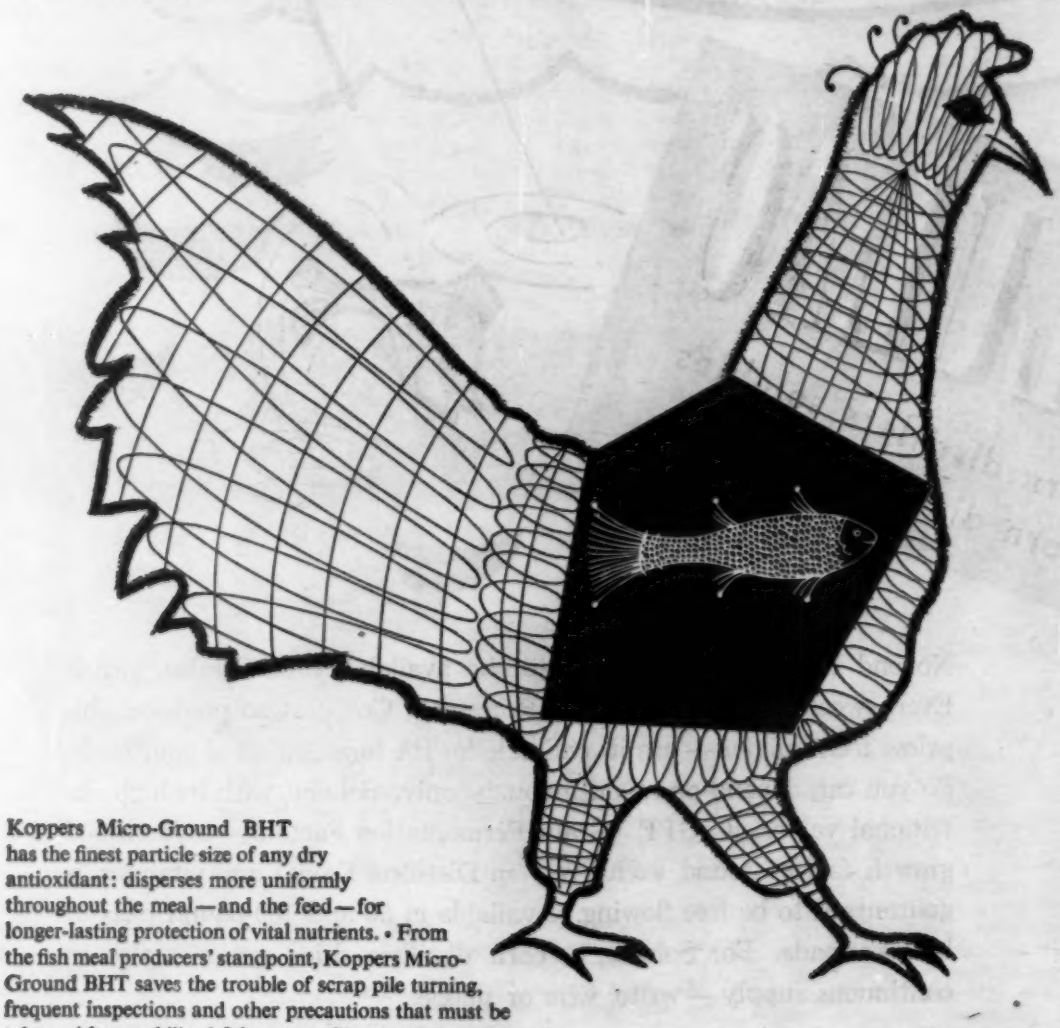

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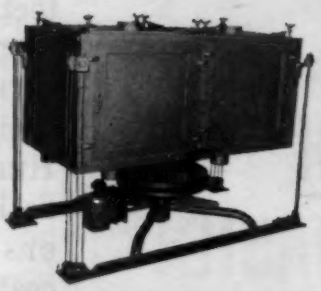

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lowing Dr. Gray's presentation, were James P. Reichmann, oat broker and a director of the Chicago Board of Trade; Dr. C. Price Wilson of Kansas State University, and Prof. Richard Phillips, Iowa State University.

Effect on Prices

The second and final day of the seminar opened with Mr. Milner as chairman. The scheduled presentation, "Effects of Futures Trading on Prices" was an exhaustive analysis on the subject by Prof. Hieronymus. Discussants who commented on his paper following its delivery were Richard M. Withrow, partner, Lamson Bros. & Co.; Prof. Reynold Dahl, department of agricultural economics, University of Minnesota, and Prof. Geoffrey Shepherd, department of economics and sociology, Iowa State University.

In his introductory remarks, Prof. Hieronymus said that particularly at the legislative level, a large share of the discussion concerning futures trading revolves around the effects of that activity on the level and variability of commodity prices. "Speculators," he said, "have been accepted as necessary offsets to hedgers but beyond this point, they have been generally castigated. The bulk of the opposition to speculators has been centered in Congress and in the Commodity Exchange Authority."

Pursuing that governmental opposition complex still further, he touched on the matter of passage of recent legislation which has actually prohibited futures trade in onions, saying that the official conclusions reached undoubtedly reflected the suspicious attitude maintained by farmers regarding futures markets.

Commenting on the broad-scale legislative interest and the reams and reams of legislative testimony, plus much other literature, both in defense of and in opposition to futures trading, the University of Illinois educator scored the general failure to get down to cases and, as he said, "specifically address the question of the effect of futures trading on commodity prices and arrive at a definitive answer." He became quite critical of the failure to do just that, saying that "this is a truly remarkable state of affairs that does not speak well for the exchanges, the Commodity Exchange Authority or economists generally" although in passing, Prof. Hieronymus did mention, "The Theory of Anticipatory Prices" by Holbrook Working as being a currently advanced approach to this important problem.

He blue-printed three steps that should be taken along these lines: "(1) the speculative pricing function of commodity exchanges should be described; (2) the general theory of the influence of speculation on prices should be established, and (3) a system of empirical analysis of the speculative influence should be devised and applied to the question."

While describing his own seminar presentation as "the first approximation of this triumvirate of needs," he admitted it is far from final and that although "a seminar of the kind now in progress has the disadvantage of exposing one's incompleted work to easy criticism," still it does present the opportunity to get "uncompleted thinking out the files and available for building upon."

On the subjects of market liquidity and price stability, Prof. Hieronymus is a firm believer that a large volume of trading affords the key to them, when he said "the greater the ratio of the volume of trading to the open interest, the more liquid and hence, the more stable the price will be. It has been observed many times that as price changes become frequent and substantial, the volume of trading increases. Most of the persons observing this tendency have concluded that a large volume of trading and much price variation are associated and some have even gone so far as to suggest that a large volume of trading causes much price variation instead of being caused by the price variation. This readily apparent short-run association has obscured the longer-run opposite association."

Much of the shooting at futures markets originates either from misinformation or political expediency, it being considered quite popular to criticize futures trading because of its supposed vulnerability to manipulation. In his treatment of the subject, Prof. Hieronymus made a strong defense for futures trading when he said that a futures market is less subject to manipulation than a cash market. "Very seldom," he said, "has a comparison of the manipulative possibilities of cash and futures markets been made. Futures trading is subjected to much supervision and regulation and there is not comparable supervision and regulation of cash commodity markets.

"Futures market positions larger than certain rather small amounts must be reported daily to the Commodity Exchange Authority and positions larger than specified amounts are prohibited. It is illegal to manipulate a futures market . . . the practices considered manipulative in futures markets are not prohibited or restricted in cash commodity operations. There is greater concentration of positions in cash markets but the broader the futures markets, the less they are subject to the action of individuals.

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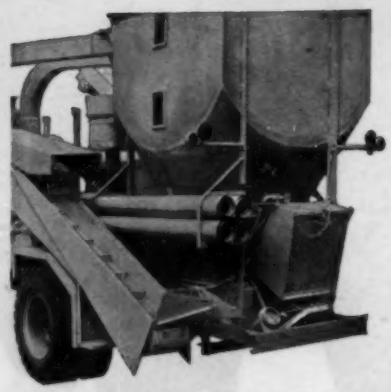

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est approximation to the classic concept of pure competition there is in our economic system is in futures markets. Competition is the antithesis of manipulation."

Variations Reduced

Summing up his observations, Prof. Hieronymus said in brief: "The overall conclusion indicated by both theoretical and empirical considerations is that the variation of prices is reduced by an active futures market. Conclusions to the contrary regarding particular markets and commodities must be based inadequately on contracts or insufficient open interest and volume of trading.

"There are great areas of unknown and unexplained in systems of speculative pricing. A better understanding of the speculative function, criteria for measuring its performance and methods of evaluation must be developed."

Future Picture

The Friday afternoon session, the concluding one of the seminar, witnessed the presentation of a paper calculated to picture the part that commodity futures markets are likely to play in the years to come. It represented a joint presentation of two U.S. Department of Agriculture economists, Allen B. Paul and William T. Wesson, under the title of "The Future of Futures Trading in Our Changing Agriculture."

Preliminary to delving into the subject at hand, these economists called attention to a number of departures from classic agricultural patterns, both as to production and marketing, that have sprung up during the past three decades or thereabouts. To mention a few of the latter, "there are vertical, horizontal and product integration, diversification and specialization among processing and distributing firms, public policies directed at economic growth, stability and farm incomes, as well as the nature of technological changes in agriculture and in other economic sectors."

Following an extensive perusal of the role of the speculator, they made inquiry into the role of the hedger. They quoted from observations made by George Wilkens, executive vice president, Minneapolis Grain Exchange, as follows: "If the milling companies did not have the hedging market available (the futures contract system in wheat), I am satisfied that they would have to go to the money markets to get additional dollars to use to own the inventories they need to operate."

The amount and terms under which these dollars would be forthcoming from the "money markets" might be considerably different. As a result, the miller might find it necessary to reorganize his business in some way. Reasoning from the individual to the group, there could well be an appreciable reorganization of productive operations in the marketing system for wheat.

Capital Situation

On the subject of capital, Mr. Paul and Mr. Wesson touched on what the farmer's investment might amount to in the future. They said that "a projection of the investment per farm in 1975 recently put it at $80,000 (1959 prices) which is double the 1954 figure. It will be beyond the means of the typical farm family unless it is well favored by inheritance, it gets high prices for many years, or lives frugally. The weight of evidence points against such events. Probably the share of farm capital by outside sources will increase."

Dealing with price supports, the speakers mentioned that "they have been operative and are the approximate cause for the decreases in futures trading activity, especially in recent years. The long-range future demand for American cotton and wheat will determine, essentially, the level of futures activity. Any change in support programs will exert a marked influence over shorter periods. In this respect, there may be more room for an increase rather than a decrease in futures trading in export staples because effective support levels already exert a large effect."

During the final and fourth session, Prof. Meloan served as chairman. Discussants who commented on the joint presentation were Walter M. Goldschmidt, assistant vice president, Continental Grain Co.; Prof. Leonard Schruben of Kansas State University and Prof. Adlowe Larson of Oklahoma State University.

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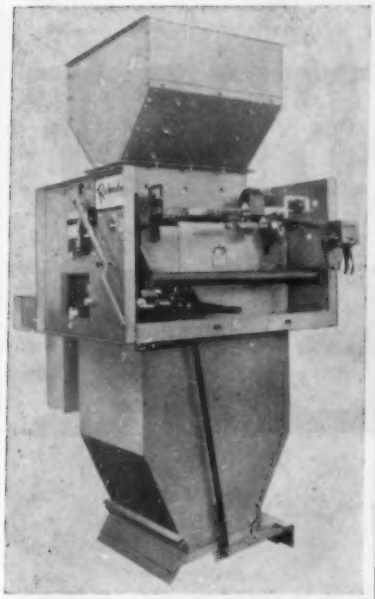
A mechanical device which accumulates enough material to provide a uniform dribble stream in the process of weighing grain has been introduced by Richardson Scale Co. Called the



"Dribble Reserve Top Hopper," the unit is adaptable to both the 6 bu. and the 10 bu. Richardson JJ Grain Receiving Scales. With the new component, the incoming stream of grain is directed into a dribble reserve compartment in order to build up the reserve necessary to feed an undiminished stream during the dribble. A gate plate in the chute at the bottom of the compartment opens to permit a full flow of grain to the scale until about four-fifths of the full weighing has passed through. At this point, the gate plate reduces the flow to a dribble. As the weigh beam of the scale comes to loaded balance with the correct amount in the weighing hopper, the gate closes completely and cuts off the dribble stream. For more information, check No. 7663 on the coupon and mail.

No. 7665—Pneumatic Conveying Data

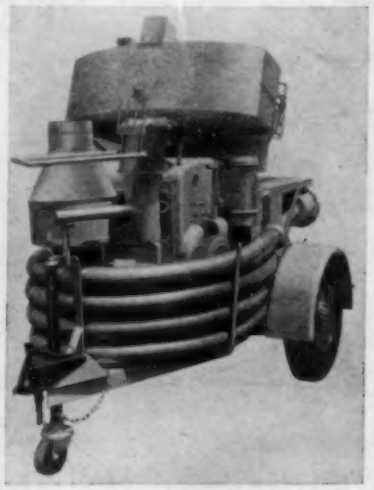
The availability of an Advance Specification Sheet (No. 214) describing Pneu-Pac, a pneumatic conveying system for car, truck or bin unloading has been announced by Sprout, Waldron & Co., Inc. The specification sheet illustrates a Pneu-Pac installation and includes an engineering drawing showing the main components. According to company literature, the capacity of the Pneu-Pac 40 is 10 to 15 tons per hour for soft feed ingredients and 15 to 20 tons per hour of bulk whole grains or similar free-flowing materials. Copies of the sheet can be obtained by checking No. 7665 on the coupon and mailing to this publication.

No. 7664—Vitamin Products

A family of stabilized vitamin products designed for use in poultry and animal feeds has been announced by Merck & Co., Inc. Called "Stabimix," the first in a series will be Stabimix A, a dry vitamin A palmitate. The material will be available in five potencies, blended with suitable diluents. According to the company the vitamin A is stable even when in direct contact with mineral-vitamin antibiotic mixtures normally added to animal and poultry feeds. The product is also stable under normal feed manufacturing conditions, storage and handling. It will be marketed in potencies of 10,000, 20,000, 30,000, 250,000 and 325,000 U.S.P. units per gram. Merits of the product listed by the company include convenience, desirable physical form, full biological activity, rapid intestinal absorption, uniformity and a wide range of dilutions to fit specific needs. Check No. 7664 and mail.

No 7668—Mobile Air Unit

Ripco Air Systems, Inc., has announced a mobile "Air Caddy" that provides a means for carrying four sections of air hoses, dust collector and nozzle. The unit is designed for outdoor use with a gasoline engine or with an electric motor for in-the-plant



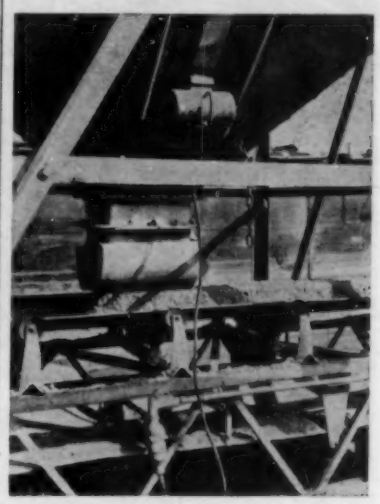
use. All that is required is a trailer hitch to convert a conventional truck to pneumatic bulk feed and granular material handling equipment, the company says. When unloading railroad cars, transferring material from one bin to another, the unit can be detached and the truck used for other purposes. For details, check No. 7668 on the coupon and mail.

No. 7666—Continuous Voltage Stabilizer

Hot Spot Detector, Inc., has announced improvement and simplification of its "Electronic Potentiometer," used to determine temperatures of stored grain. The new Continuous Voltage Stabilizer replaces the battery, standard cell and standardizing mechanism previously used in the Potentiometer, the company says. The stabilizer unit regulates the direct current reference voltage supply to the measuring circuit of the Potentiometer. It assures uninterrupted response to changes in the measured variable voltage, the company said. Other features listed by the company were more dependability and less maintenance (no battery to replace). For more information, check No. 7666 on the coupon and mail.

No. 7667—Electric Vibrators

The RC model line of electric vibrators has been announced by Cleveland Vibrator Co. According to the company, the line has the ability to move stubborn materials from outdoor bins, regardless of weather, from hoppers to conveyor belt in an accurately measured stream. The water and dust-tight construction safeguards operation of the unit, it was noted. The RC models employ the rotating eccentric shaft principle of developing vibration, but are self contained with no pulleys or belts. They are totally enclosed, with a built-in AC motor



and eccentrics. The line is available in a three-phase, AC current in all common voltages. Working frequency is 3,600 impulses per minute, corresponding to 60 cycles per second. For more information, check No. 7667 on the coupon and mail.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7610 — Half-round aeration, Rolfes Grain Aeration Companies.

No. 7611—Materials handling unit, Conveyors & Dumpers, Inc.

No. 7612—New size package, Abbott Laboratories.

No. 7613—Checkweigher literature, Toledo Scale.

No. 7614 — Bulk storage tank, Leach Manufacturing Co.

No. 7615—Auto leasing study, Foundation for Management Research.

No. 7616—Push button hog feeder, Parker Feeders, Inc.

No. 7617—Large grain bin, Martin Steel Corp.

No. 7618—New catalog, Burrows Equipment Co.

No. 7619—Bulletin on stream splitters, Sprout, Waldron & Co., Inc.

No. 7620—Hard-grains roller mill, Ross Machine & Mill Supply Inc.

No. 7621—Fresh egg merchandiser, Tobias Enterprises.

No. 7622 — Power drum handler, Specialty Machinery Corp.

No. 7623 — Dual motor vibrator, Cleveland Vibrator Co.

No. 7624 — Conversion truck unit, Ripco Air Systems.

No. 7625—Equipment catalog, the Bauer Bros. Co.

No. 7626—Crusher bulletin, Metals Disintegrating Co., Inc.

No. 7627 — Drag plate conveyor, Strong-Scott Manufacturing Co.

No. 7628 — Dairyman's Promotion, Hess & Clark.

No. 7629—Moisture barrier, Knott Chemical Co.

No. 7631 — Handle bag, Hudson Pulp & Paper Corp.

No. 7632—Automatic batching control, Toledo Scale Corp.

No. 7633—Vibration inducer, Martin Engineering Co.

No. 7634—Pig raising information,

Send me information on the items marked:

- ☐ No. 7663—New Hopper
- ☐ No. 7664—Vitamin Products
- ☐ No. 7665—Pneumatic Conveying Data
- ☐ No. 7666—Continuous Voltage Stabilizer
- ☐ No. 7667—Electric Vibrators
- ☐ No. 7668—Mobile Air Unit

(PLEASE PRINT OR TYPE)

Others (list numbers) .....

NAME .....

COMPANY .....

ADDRESS .....

——— CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL ———

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(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Feedstuffs

P. O. Box 67

Reader Service Dept. Minneapolis 40, Minn.

45-YEAR-OLD HAY IS GOOD FEED

MANHATTAN, KANSAS — Good quality hay properly stored in a dry place will retain most of its nutritional qualities for at least 45 years, according to Dr. Draytford Richardson, Kansas State University scientist.

Dr. Richardson has just had hay that was 45 years old chemically analyzed. He said its protein content was 19.09%, 3 or 4% above the protein content of average fresh hay. Crude fiber content of the old hay was 21.34%, which is lower than normal and indicates the hay that had been stored since World War I was excellent quality hay when it was stored. Dr. Richardson said that although the old hay contained no pro-vitamin A, it still would be good feed.

The hay was brought to Dr. Richardson by Tom Appleby, a recent Kansas State graduate. It had been stored in an old barn. The hay supply had been replenished each year before it was completely used. The hay analyzed was near the bottom in a corner that had not been emptied.

Chore Boy Manufacturing Co., Inc.

No. 7635—Mastitis ointment, Merck & Co., Inc.

No. 7646—Impact mill, Safety Industries, Entoleter Division.

No. 7647—Grain storage building, Stran-Steel Corp.

No. 7648—Grain cleaner, Superior Co.

No. 7649—"New Leader" spreader, Highway Equipment Co.

No. 7650—New package size, Hess & Clark.

No. 7651—Boiler bulletin, Superior Boiler Works.

No. 7652—Feed grinder bulletin, Gruendler Crusher & Pulverizer Co.

No. 7653—Cattle cobalt bullet, Nichols of America Ltd.

No. 7654—Feed body options, Gaddis Brothers Manufacturing Co., Inc.

No. 7655—Hydraulic mobile mill, Iowa Portable Mill.

No. 7656—Sales letter booklet, Gladwin A. Read Co.

No. 7657—Belt joining booklet, Imperial Belting Co.

No. 7658—New control unit, Hot Spot Detector, Inc.

No. 7659—Bulk feed handler, Dodgen Industries.

No. 7660—Lamb hormones, Chas. Pfizer & Co., Inc.

No. 7661—Bulk feed body, Gaddis Bros. Manufacturing Co., Inc.

No. 7662—Fly maggot control, Allied Chemical.

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VITAMIN OIL
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"PRODUCTS OF PROGRESS"

More and More . . . Feed Mills Are using More and More Stabilized ANIMAL FATS and MEAT PROTEINS
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Organized in 1923
20 N. LA SALLE ST.
CHICAGO 2, ILL.
Phone FR 2-3299

Honor Set for Poultry Leader in Arkansas

LITTLE ROCK, ARK.—The annual Poultry Day at the 1959 Arkansas Livestock Show, scheduled for Oct. 8, will this year honor one of Arkansas' outstanding poultry industry leaders —Charles D. Hawks, general manager, Arkansas Poultry Federation.

Mr. Hawks has been with the federation for over six years. During this period, the group promoted removal of the sales tax on poultry feed which reduced the production costs of raising poultry. Also, during this period, the Arkansas Egg Marketing Act was passed.

Gov. Orval Faubus will award Mr. Hawks a bronze plaque.

The formal Poultry Day program will be opened by Jess Merkle, El Dorado, president, Arkansas Poultry Federation.

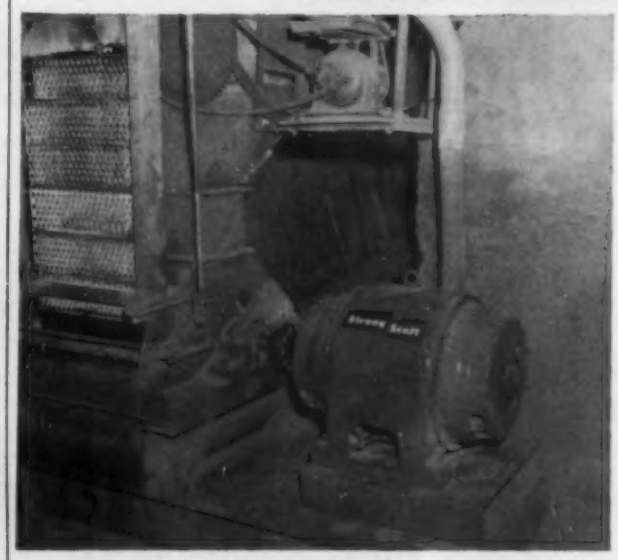
more feedmen read
FEEDSTUFFS
than any other magazine in the field

Strong Scott

"WE CUT OUR GRINDING POWER COSTS BY 29% AND DOUBLED OUR FEED VOLUME..."

says Galen Hartung, manager of Dane County Farmers Union Co-Op, Cottage Grove, Wisconsin

Galen Hartung, above, manages the new Dane County Farmers Union Co-Op elevator which was completed in 1958 by Hogenson Tank and Construction Co.



Not one screen has had to be changed on this Hammermill. The 100 H.P. motor on the mill and 40 H.P. on the blower provide the ideal combination for efficient, high-capacity grinding at Dane County Farmers Union Co-Op.

"One year ago we installed our Strong-Scott quick change Hammermill," said Galen. "Since then, our books show that we have doubled our income from grinding and that our power costs were 29% less than what they used to be with our old mill.

"We are still grinding on the first of the four corners of the hammers which have given us over $14,000.00 income at a charge of 8 cents per CWT for custom grinding.

"We get very good capacity from our Hammermill and use the quick change constantly," he concluded. "We have never had any maintenance at all." The Strong-Scott Hydraulic Truck Hoist is also used at Cottage Grove.

EQUIPMENT DESIGNED FOR BETTER PROCESSING

The Strong Scott Mfg. Co.

451 Taft Street N. E.
Minneapolis 13, Minnesota

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(the profits come naturally)

RED W BRAND Protein Concentrates

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When you sell RED W BRAND Meat and Bone Scraps, Digester Tankage, and Vitagen Feeding Fat, you're giving your customer the high energy feed he needs. RED W BRAND builds repeat business...puts meat on the animal, money in the till.

Animal Protein Concentrates and Vitagen Feeding Fat

The BEST Ingredients Make BETTER Feeds

RED W BRAND 50% Meat and Bone Scraps
RED W BRAND 60% Digester Tankage
RED W BRAND Steamed Bone Meal
RED W BRAND Vitagen Feeding Fat

Write or telephone for quotations on any quantity you need!

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COLUMBIA SOFT PHOSPHATE

Write for full information and prices . . .

COLUMBIA PHOSPHATE CO.
1007 Washington Ave.
St. Louis 1, Missouri

★ Buy and Sell Through WANT ADS ★

CALENDAR

(Continued from page 36)

Oct. 29-30—West Virginia Feed Dealers Assn.; Blackwater Falls Lodge, Davis; sec., J. S. Larrick, Beckley Ice & Feed, Beckley, W. Va.

Oct. 30—Rooters Day; University of Nebraska, Lincoln; Dr. E. R. Peo, Animal Husbandry Department.

Oct. 30—Illinois Sheep Producers Day; University of Illinois, Urbana; chm., Dr. U. S. Garrigus, Department of Animal Science.

Nov. 1-4—Mississippi Poultry Improvement Assn., Biloxi; Dean & Director, Division of Agriculture, Mississippi State University, State College, Miss.

Nov. 4-5—Kansas Poultry Assn.; Broadview Hotel, Wichita; sec., Harry J. Reed, Box 663, Manhattan, Kansas.

Nov. 4-5—Illinois Feed Assn. and Illinois Poultry Improvement Assn., joint convention; Armory, Springfield, Ill.; IFA, Leland Hotel; sec., Dean M. Clark, Board of Trade Bldg., Chicago; IPIA, St. Nicholas Hotel; sec., Aubrey Harless, Box 91, Shelbyville, Ill.

Nov. 4-7 — National Renderers Assn., Hollywood Beach Hotel, Hollywood Beach, Fla.; sec., Miss Jamie Fox, 30 N. La Salle St., Chicago 2, Illinois.

Nov. 5-6—Florida Nutrition Conference; Medical Center Auditorium, University of Florida, Gainesville; sponsored by Florida Feed Dealers Assn. and Florida Agricultural Experiment Station; chm., Dr. J. P. Feaster, Department of Animal Husbandry and Nutrition.

Nov. 6-7—Oklahoma Formula Feed Conference; Oklahoma State University, Stillwater; chm., Dr. Rollin H. Thayer, Poultry Science Department. Jackson Blvd., Chicago 4, Ill.

Nov. 12-13—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. F. W. Hill, Poultry Husbandry Dept., Cornell University, Ithaca, N.Y.

Nov. 11-13—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. M. L. Scott, Poultry Husbandry Department, New York State College of Agriculture, Cornell University, Ithaca, N.Y.

Nov. 13-14 — Oregon Sheep and Wool Days, Oregon State College, Corvallis; chm., Dr. C. W. Fox, Dairy & Animal Husbandry Dept.

Nov. 16—North Dakota Sheep Day; North Dakota Agricultural College, Fargo; M. L. Buchanan, Chief, Division of Animal Industry.

Nov. 16—Tennessee Feed Manufacturers Assn., Claridge Hotel, Memphis, Tenn.; sec., Charles H. Warfield, American Trust Bldg., Nashville, Tenn.

Nov. 16-17—Washington Animal Industry Conference; Yakima Junior College, Yakima, Wash.; John G. Wilson, Washington State Feed Assn., Inc., 814 Second Avenue Bldg., Seattle 4.

Nov. 18—School for Poultry Servicemen; University of New Jersey, Agricultural Experiment Station, New Brunswick; chm., R. L. Squibb, Department of Poultry Science.

Nov. 19-20—National Swine Industry Conference; Iowa State University, Ames; chm., Keith Myers, National Swine Growers Council, Grundy Center, Iowa.

Nov. 21—Missouri Sheep Day, University of Missouri, College of Agriculture, Columbia; C. V. Ross, Department of Animal Husbandry.

Nov. 22-24—Western Grain & Feed Assn. of Iowa; Fort Des Moines Hotel, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines 9, Iowa.

Nov. 23-25—Alabama Animal Nutrition and Management Conference; Duncan Hall, Alabama Polytechnic Institute, Auburn; sponsored by Alabama Feed Assn., sec., Merlin Bryant, Brundidge Milling Co., Inc., Brundidge, Alabama.

Nov. 27-28—American Society of Animal Production; Sherman Hotel, Chicago, Ill.; sec., Dr. H. H. Stonaker, Colorado State University, Ft. Collins, Colo.

Nov. 30-Dec. 1—Midwest Veterinary Nutrition Conference; President Hotel, Kansas City; sec., Lloyd Larson, Midwest Feed Manufacturers Assn., 20 W. 9th Street Bldg., Kansas City 5, Mo.

Dec. 2—Ontario Retail Feed Dealers Association; King Edward Sheraton Hotel, Toronto; sec., Murray McPhail, 69 Yonge Street, Toronto.

Dec. 3-4—North Carolina Animal Nutrition Conference; North Carolina State College, School of Agriculture, Raleigh; chm., E. R. Barrick, Head, Animal Husbandry Section.

Dec. 4-5 — Arkansas Turkey Convention and Show; Berryville, Arkansas; sec., Charles D. Hawks, P. O. Box 1446, Little Rock.

Dec. 7-9—Minnesota Poultry Assn., Radisson Hotel, Minneapolis; sec., L. L. Baumgartner, Litchfield, Minn.

Dec. 8-9 — Poultrymen's Service Clinic; Cornell University, Ithaca, N.Y.

1960

Jan. 4-5—Kansas Formula Feed Conference; Kansas State University, Manhattan, Kansas.

Jan. 4-8 — Retail Feed Dealers

Walter Blanton

NUTRITION ADDRESS — Walter Blanton, president of the Texas Grain and Feed Assn., will address the Texas Nutrition Conference Oct. 7. Mr. Blanton is vice president and general manager of Blanton Grain Co., Carrollton, Texas, and a past president of the Dallas Grain Exchange. The conference will be held at the Memorial Student Center on the Texas A&M College campus at College Station, Texas, Oct. 7-9.

CALENDAR FOR 1959-60

SEPTEMBER

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Training School; University of Minnesota, St. Paul; Dr. J. O. Christianson, Director of Agricultural Short Courses, Institute of Agriculture, St. Paul 1.

Jan. 5-7—National Turkey Federation; Hotel Leamington, Minneapolis; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 17-19—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred K. Sale, 600 Board of Trade Building, Indianapolis, 4, Ind.

Jan. 25-27 — Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec. Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Feb. 2-4 — American Dehydrators Assn.; Broadmoor Hotel, Colorado Springs; exec. vice pres., Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 4-5—Oregon Animal Industry Conference; Oregon State College, Corvallis, Ore.; chm., Dr. J. E. Parker, Poultry Husbandry Department.

Feb. 8-9—Montana Nutrition Conference; Montana State College, Bozeman; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 8-9—Midwest Feed Manufacturers Assn.; Muehlebach Hotel, Kansas City; exec. vice pres., Lloyd Larson, 20 W. 9th St. Bldg. Kansas City 5, Mo.

Feb. 10-11—Pacific Northwest Feed Mill Production School; Chinook Hotel, Yakima, Wash.; sponsored by Washington State Feed Assn., mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 11—Boston Grain and Flour Exchange Annual Banquet; Sheraton-Plaza Hotel, Boston; chm., Paul Sutliff, 177 Milk St., Boston, Mass.

Feb. 12—Washington State Feed Assn.; Chinook Hotel, Yakima, Wash.; annual convention; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 12-14—Fact Finding Conference, sponsored by the Institute of American Poultry Industries; Municipal Auditorium, Kansas City, Mo.; pres., Harold M. Williams, 59 East Madison, Chicago, Ill.

Feb. 21-23—Ohio Grain & Feed Dealers Assn.; Commodore Perry Hotel, Toledo; sec., G. E. O'Brien, 694 N. Ohio Street, Greenville, Ohio.

Feb. 23-24—Virginia Feed & Nutrition Conference; Hotel Roanoke, Roanoke; J. Paul Williams, sec., Virginia State Feed Assn., 615 E. Franklin St., Richmond, Va., or Prof. Paul M. Reaves, Department of Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

March 7-8—Grain & Feed Dealers National Assn.; Hotel Muehlebach, Kansas City; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

March 17-18—Oregon Feed & Seed Dealers Assn.; New Sheraton Hotel, Portland, Ore.; mgr., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Mar. 17-18—Maryland Nutrition Conference; Shoreham Hotel, Washington, D. C.; chm., Richard D. Creek, University of Maryland, Department of Poultry Husbandry, College Park.

March 23—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

April 1-2—Texas Grain & Feed Assn., Shamrock Hotel, Houston; sec., Ray B. Bowden, 407 Fort Worth Club Bldg., Ft. Worth 2, Texas.

April 5-7—Nebraska Grain & Feed Dealers Assn.; Pershing Municipal Auditorium, Lincoln; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

April 11-13—Poultry and Egg National Board, LaSalle Hotel, Chicago, Ill.; mgr., Floyd Gell, 8 S. Michigan Ave., Chicago 13, Ill.

April 21-23—California Hay, Grain & Feed Dealers Assn., Ambassador Hotel, Los Angeles; sec., John Gilmore, Blue Anchor Bldg., 1400 10th St., Sacramento 14, Cal.

April 21-23—Kansas Grain & Feed Dealers Association; Broadview Hotel, Wichita, Kansas; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

April 22 — Nebraska Livestock Feeders Day; University of Nebraska, College of Agriculture, Lincoln; chm., Wm. J. Loeffel, Animal Husbandry Dept., Lincoln 3, Neb.

May 9-11—American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

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is Best with *Eye Appeal*
For Poultry of all Ages
North Carolina Granite Corporation
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CALL *Babe* or *Bob Stuart* for
★ MILL FEEDS ★ LINSEED MEAL ★ SOYMEAL
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HIGHEST PAYLOADS PER CUBIC FOOT
FMC BULK FEED SYSTEMS
NOW AVAILABLE FROM HOOPESTON, ILLINOIS

Knife-action sliding gates provide easy, accurate metering or full cutoff of feed flow.

EXCLUSIVE tank-top and ground-level gate controls give fast, easy operation.

Fastest unload rate available (*up to a ton a minute*) often enables scheduling extra deliveries.

EXCLUSIVE chain and paddle conveyor system handles pelleted feeds with virtually no damage—gives your customers the pellets they paid for.

Complete operation accomplished by use of simple, inexpensive power take-off on truck transmission.

Tank compartments carefully sized for delivery requirements of your specific operation; suggested truck specifications worked out to assure maximum payloads.

FMC's *all-mechanical* design is easy to operate and maintain—simplifies operating parts and keeps your time and labor costs to a minimum.

Torque limiter automatically protects against overloading of conveyor system.

Low center of gravity and plenty of clearance with *all* loading bins.

Oversize leak-proof *sliding door* hatches for fast and easy loading.

Slip-proof expanded metal catwalks for maximum operator safety in all weather.

Maximum-duty design provides *wide sack decks* running full length of tank on both sides; will carry up to 1,400 pounds of sacked material.

The FMC Bulk Transport System, with its light, rugged aluminum construction and all-mechanical design is now, more than ever, your answer to best bulk delivery at least ton-mile costs.

Truck mount models available in 8-16 ton capacities.

Mail coupon for complete information

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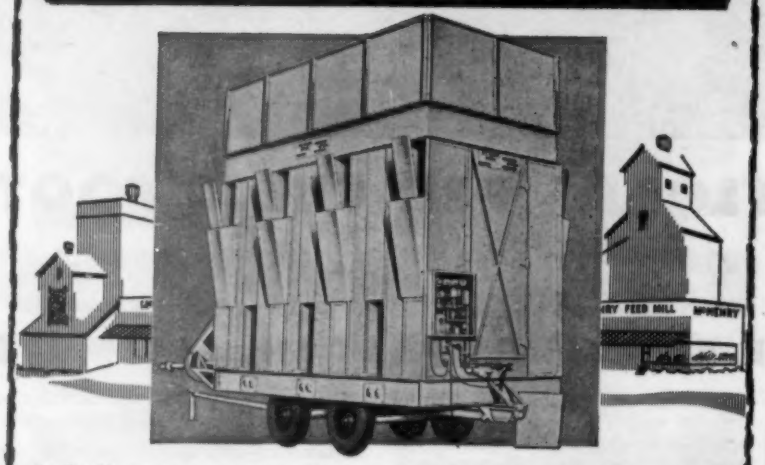

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Processed Soybeans and Soybean Oil as Experimental Ingredients in Practical Broiler Diets

This is the second soybean processing report presenting the data collected from broiler feeding experiments conducted in the nutrition house at the University of Delaware Substation. These experiments were conducted with locally grown soybeans in an attempt to discover ways in which they could be processed and used as an efficient, economical ingredient in practical broiler diets.

Test No. 1 was completed on June 2, 1959. The data were interpreted as demonstrating that broilers fed diets containing whole, unextracted soybean meal processed under the conditions of this experiment failed to grow as rapidly or utilize their feed as efficiently as those broilers receiving a control diet containing regular dehulled extracted soybean oil meal and stabilized feed grade fat.

All of the available reports on feed-

EDITOR'S NOTE: This is a progress report from the University of Delaware Agricultural Experiment Station, Newark. The information in the report was presented at the annual poultrymen's open house at the Georgetown Substation of the university. The report was prepared by T. D. Runnels, L. M. Greene, F. A. D'Armi, H. C. Hoyt, M. S. Cover and J. F. Gordy.

TABLE 1. Experimental Starter Diets Fed from Start to 5th Week as Mash

Ingredients	S-1	S-2	S-3	S-4	S-5	S-7	S-8
Regular dehulled extracted soybean oil meal	619	619	619				
Experimental dehulled whole soybean meal (Continuous process No. T-3-9-0)				756			
Experimental whole soybean meal with hulls (Continuous process No. T-5-9-9)					814		
Experimental whole soybean meal with hulls (Batch process No. 1 meal No. T-5-9-9-0)						814	
Experimental whole soybean meal with hulls (Batch process No. 2 meal No. T-5-9-9-0)							814
Regular stabilized feed grade fat	140						
Crude soybean oil		140			7	7	7
Cooked soybean oil			140				
Ground yellow corn	962	962	962	939	900	900	900
Water				26			
Alfalfa meal	25	25	25	25	25	25	25
Corn gluten meal	50	50	50	50	50	50	50
Menhaden fish meal	50	50	50	50	50	50	50
Condensed menhaden fish solubles	30	30	30	30	30	30	30
Fermentation dried solubles (C F S)	25	25	25	25	25	25	25
Fermentation product (Omafac)	20	20	20	20	20	20	20
Salt	8	8	8	8	8	8	8
Trace minerals with Mn and Zn	1	1	1	1	1	1	1
Dical P. 18 Ca 32.5	40	40	40	40	40	40	40
Ground limestone	10	10	10	10	10	10	10
Special mix*	20	20	20	20	20	20	20
Total	2000	2000	2000	2000	2000	2000	2000
	Calculated Analysis in Percentage						
	S-1	S-2	S-3	S-4	S-5	S-7	S-8
Protein	24.01	24.01	24.01	24.01	24.01	24.01	24.01
Fat	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Productive energy	1063	1063	1063	1066	1069	1065	1065

*Special Mix—20 lb. of the special mix added to each ton of feed provided: Vitamin A—4,500,000 units, D3—1,000,000 units, riboflavin—4 gm., niacin—30 gm., pantothenic acid—9 gm., choline—350 gm., B 12—6 mg., BHT—56.7 gm., vitamin E—2,500 units, penicillin—4 gm., K (hetrogen)—1 gm., Unistat No. 2—2 lb.

TABLE 2. Experimental Finisher Diets Fed from 5th to 8th Week as Mash

Ingredients	F-1	F-2	F-3	F-4	F-5	F-7	F-8
Regular dehulled extracted soybean oil meal	466	466	466				
Experimental dehulled whole soybean meal (Continuous process No. T-3-9-0)				570			
Experimental whole soybean meal with hulls (Continuous process No. T-5-9-0)					614		
Experimental whole soybean meal with hulls (Batch process No. 1 meal No. T-5-9-9-0)						614	
Experimental whole soybean meal with hulls (Batch process No. 2 meal No. T-5-9-9-0)							614
Regular stabilized feed grade fat	105						
Crude soybean oil		105			5	5	5
Cooked soybean oil			105				
Ground yellow corn	1160	1160	1160	1141	1112	1112	1112
Water				20			
Alfalfa meal	25	25	25	25	25	25	25
Corn gluten meal	50	50	50	50	50	50	50
Menhaden fish meal	50	50	50	50	50	50	50
Condensed menhaden fish solubles	30	30	30	30	30	30	30
Fermentation dried solubles (C F S)	25	25	25	25	25	25	25
Fermentation product (Vigofac C)	10	10	10	10	10	10	10
Salt	8	8	8	8	8	8	8
Trace minerals with Mn and Zn	1	1	1	1	1	1	1
Dical P. 18 Ca 32.5	40	40	40	40	40	40	40
Ground limestone	10	10	10	10	10	10	10
Special mix*	20	20	20	20	20	20	20
Total	2000	2000	2000	2000	2000	2000	2000
	Actual Analysis in Percentage						
	F-1	F-2	F-3	F-4	F-5	F-7	F-8
Moisture	11.90	12.07	12.37	12.97	11.93	11.24	11.43
Protein	20.9	20.4	20.4	21.7	20.5	21.2	21.2
Fat	7.91	8.41	8.00	8.21	9.00	7.82	7.89
Fiber	2.24	2.32	2.42	2.57	3.05	2.93	2.95
Ash	6.21	5.90	5.98	6.21	6.09	6.66	6.42
N. F. E.	50.80	50.90	50.83	48.34	49.43	50.15	50.11
Carbohydrates	53.04	53.22	53.25	50.91	52.48	53.08	53.06

*Special Mix—20 lb. of the special mix added to each ton of feed provided: Vitamin A—4,500,000 units, D3—1,000,000 units, riboflavin—4 gm., niacin—30 gm., pantothenic acid—9 gm., choline—350 gm., B 12—6 mgm., B.H.T.—56.7 gm., vitamin E—2,500 units, penicillin—4 gm., K (Klatogen)—1 gm., Unistat No. 2—2 lb.

ing processed soybeans as an ingredient in broiler diets were studied in planning this experiment. Since no floor pen data was available on the feeding value of soybean oil, it was decided to introduce this product as an experimental variable in an attempt to isolate the portion of the processed unextracted soybeans responsible for the poorer broiler growth than obtained from those receiving the practical control diets. The results from this experiment are summarized at the end of this report.

Preparation of the Experimental Variables—The soybeans used in this experiment were grown locally and obtained from the same source. All of the batches were flaked as the first step in their processing. These precautions were taken to reduce outside variation over which the experiment would have no control.

The soybean oil used in treatments 2 and 3 was obtained from the storage tanks at the same soybean mill that provided the beans. The lecithin had settled and this oil was relatively lecithin free. The soybean oil used in treatment 2 was added to the diet without further processing. The oil used in treatment 3 was heated to a rolling boil for 60 minutes at a temperature of approximately 350° F.

The beans processed by the continuous method were treated as nearly like commercial extracted soybean oil meal as their physical condition would permit. The facilities were the same except the unextracted beans by-passed the solvent extractors.

The batch processing consisted of grinding the flaked beans to a fine texture before cooking. The meat scrap cookers were loaded with ground beans and enough water was added to bring their moisture level up to 20%. The agitators were turned on and the steam introduced. The cooking continued at about 2 PSI. Batch 1 (treatment 7) was cooked for 40 minutes; the steam was cut off and the beans rotated for another 5 minutes. The cooked beans were then discharged into a rotary dryer and air dried without heat for 10 minutes and then with heat for another 10 minutes. The total cooking time was calculated to be 50 minutes. Batch 2 (treatment 8) was treated the same as batch 1 but was permitted to cook only 25 minutes. The dryer reduced the moisture on both batches to 11%.

Experimental Procedure — Forty-five hundred sexed Vantress X Arbor Acre chicks were purchased from a commercial hatchery for this experiment. They arrived at the Georgetown Substation nutrition house on June 16, 1959, and were distributed

TABLE 3. Summary of Results White Cross Chicks (Vt. X AA) Sexed and Distributed 50-50, 150 Chicks Per Floor Pen

Treatment and number	Pen No.	—Four Weeks of Age— Av. weight	Feed/wt.	—Eight Weeks of Age— Av. weight	Feed/wt.
1	3	1.02	1.81	2.63	2.33
Regular extracted	7	1.04	1.79	2.61	2.36
dehulled soy +	20	1.07	1.78	2.56	2.30
feed grade fat	25	1.04	1.85	2.69	2.32
Average		1.04	1.81	2.62	2.33
2	12	1.01	1.79	2.57	2.38
Regular extracted	1	1.01	1.78	2.50	2.42
dehulled soy +	24	1.05	1.74	2.54	2.43
crude soybean oil	19	1.05	1.73	2.62	2.32
Average		1.03	1.76	2.56	2.39
3	6	1.03	1.75	2.56	2.41
Regular extracted	2	1.00	1.77	2.53	2.34
dehulled soy +	16	1.05	1.76	2.66	2.30
cooked soybean oil	26	1.03	1.81	2.59	2.41
Average		1.03	1.77	2.59	2.37
4	10	.97	1.85	2.48	2.51
Experimental dehulled	14	1.00	1.86	2.47	2.50
whole soybean meal	27	.95	1.85	2.53	2.39
(Continuous process)	17	.99	1.87	2.39	2.57
Average		.98	1.86	2.47	2.49
5	15	.96	1.93	2.50	2.52
Experimental whole	11	.91	1.98	2.41	2.55
soybean meal with hulls	18	.97	1.94	2.45	2.51
(Continuous process)	28	.96	1.94	2.48	2.44
Average		.95	1.95	2.46	2.51
7 Batch No. 1	5	.94	1.89	2.45	2.46
Experimental whole	13	.98	1.87	2.53	2.45
soybean meal with hulls	22	.95	1.85	2.43	2.51
(Batch process—50 minutes)	30	.97	1.75	2.52	2.43
Average		.96	1.84	2.48	2.46
8 Batch No. 2	4	.97	1.76	2.45	2.38
Experimental whole	8	.98	1.83	2.56	2.41
soybean meal with hulls	21	.92	1.83	2.54	2.43
(Batch process—25 minutes)	29	1.00	1.83	2.63	2.33
Average		.97	1.81	2.55	2.39
9					
Commercial feed	1				
starter - crumbles;	9	1.07	1.63	2.72	2.16
finisher - pellets	23	.99	1.70	2.73	2.17
Average		1.03	1.67	2.725	2.165

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at random on the basis of equal sexes into 30 pens and 150 chicks each.

The equipment and management were similar to that used in commercial practice and were the same for all pens.

Feed—The feed for this experiment was purchased on bid from a local feed company. It was mixed according to the formulas in Tables 1 and 2. Both the experimental starters and finishers were fed as mash. The broilers in the two pens receiving commercial feed were fed crumbles as starter and pellets as finisher.

Collection of Data—The first data were collected when the chicks were 4 weeks old. All of the chicks were weighed in each pen irrespective of sex and the average weights calculated. The amount of feed consumed was determined and converted into pounds of feed required to produce a pound of broiler.

The second and final collection of data was made when the broilers were 8 weeks of age. The method of collecting the data and determining feed conversion was the same as those used when the chicks were 4 weeks old. A summary of the data is recorded in Table 3.

Summary and Conclusions—In this experiment the control diet containing regular dehulled extracted soybean oil meal and stabilized feed grade fat produced the heaviest broilers with the most efficient feed utilization at 8 weeks of age.

When the feed grade fat was replaced with crude soybean oil (treatment 2) or cooked soybean oil (treatment 3), the diets produced slightly lighter weight broilers with poorer feed utilization at 8 weeks of age. However, these differences were small and additional research would be required to determine whether or not there is a valid difference in the feeding value between the feed grade fat and soybean oil. There appeared to be no difference in the feeding value between the crude and cooked soybean oil.

The continuous processed unextracted soybean meals (treatment 4-dehulled), (treatment 5-with hulls) produced results that were inferior to those produced by both the control and soybean oil supplemental diets. The diets containing the meal with hulls produced only slightly poorer results than those from the dehulled meal.

The length of time the meal was cooked in the batch process appeared to affect the results in that the broilers receiving the diets containing the meal cooked for 25 minutes (treatment 8) gained more rapidly and utilized their feed more efficiently than those receiving the diets containing the beans cooked for a longer period of time (treatment 7).

The results from this experiment indicate that the proper use of four items is needed in processing unextracted soybeans. These are cooking time and temperature to destroy the trypsin inhibitor, moisture to preserve the protein quality while cooking, and flaking to rupture the cells and make the oil available for digestion. All of the beans used in this experiment were flaked as a part of their processing.

Acknowledgement — The project committee wishes to gratefully acknowledge the help of the Delaware Poultry Nutrition Council and industry representatives in planning the experiment. The same appreciation is expressed to Townsends, Inc., Mardel Byproducts Corp., the Otis Feed Co., and Murray's Feed Service, Inc., for their help in obtaining and processing the soybeans and soybean oil and in mixing the experimental diets.

Assign 145 Exhibitors NTF Convention Space

MOUNT MORRIS, ILL.—A total of 145 exhibitors already have been assigned space for the National Turkey Federation convention to be held in Minneapolis, Minn., Jan. 5-7, 1960.

The amount of space assigned to date in the Minneapolis Municipal Auditorium exceeds any previous year. Plans for the convention program and activities will be reported later.

EARN SHORT COURSE CERTIFICATES—Feed microscopists representing industry and regulatory agencies in the U.S. and Mexico earned certificates for completing a short course in feed microscopy recently at Texas A&M College. Standing (left to right) are: Wallace L. Saunders, Tallahassee, Fla.; G. M. Barnhart, Jefferson City, Mo.; Gerald D. Miller, Manhattan, Kansas; Edward C. Petrie, Tallahassee, Fla.; J. H. Dawson, Jefferson City, Mo.; Jim Ridleherber, Abilene, Texas; Melvin C. Tucker, Little Rock, Ark.; Edward J. Rowley, Barrington, Ill.; E. E. Brown, College Station, Texas; Jerry L. Stephens, Chicago; Irby H. Brown, Richmond, Va.; Carlos W. Wales, Decatur, Ala.; Alfred C. Koontz, Humbolt, Neb.; Luis G. Serna, Monterrey, Mexico; Dean L. Mingus, Ft. Worth, Texas; Dr. Antonio E. Cuauhtli, Mexico City, Mexico. Seated (left to right) are: Jack L. Krause, St. Paul, Minn.; Demcie R. Burton, Rosebud, Texas; L. P. Kidneigh, Denver, Colo.; Wilma Hill, Quincy, Ill.; Sheila J. Gamel, Kansas City, Mo.; Lewis A. Barefield, Little Rock, Ark.; C. J. Lopez, Mexico City, Mexico; Frank L. Coune, Tampa, Fla., and G. H. Garcia, Mexico City, Mexico. Leota B. Parrack, Minneapolis, Minn., not pictured, also completed the course.

Floor Birds Perform Better Than Cage Layers in Test

MODESTO, CAL.—Layers on floors produced more eggs per bird and required less feed to produce a dozen eggs in the 10th California official random sample egg laying test, according to a report of the Poultry Improvement Commission of California.

To 67 weeks of age, 10th test floor birds averaged 224 eggs per bird, which surpasses any previous California random sample test. Their "sisters" housed in individual cages averaged 194 eggs for the same period. Data shows that cage birds never have reached the performance of floor birds at any time during the test. But, the commission says, reasons for the lower production in the cage house are not known. "It should be remembered that per cent production can be varied considerably by culling," the report notes. "Neither the floor birds nor cage birds are culled."

From 56 to 67 weeks of age, mortality for the floor and cage birds were about the same (1.3 and 1.2%, respectively). However, 10th test results show that mortality from 19 to 67 weeks was 8.3% for floor birds compared with 5.2% for cage birds. This difference was not noted in the ninth random sample egg laying test.

On a hen/day basis, floor birds produced 59 eggs from 56-67 weeks, while the figure for cage layers during the same period was 51 in the 10th test. From 19 to 67 weeks, comparative figures on a hen/day basis were 224 for floor layers and 194 for birds in cages. For the same period, but using a basis of per pullet housed, the floor birds produced 212 eggs and the cage birds produced 188. Differences between floor and cage birds were not so great in the ninth test.

The following table shows a comparison of floor birds against cage birds relative to feed required to produce a dozen of eggs during five production periods:

Pounds Feed Per Dozen Eggs
Floor Birds vs. Cage Birds

	Cage birds	Floor birds
August-October (to 31 weeks)	6.2 lb.	5.7 lb.
November-December (32-43 weeks)	4.3 lb.	4.2 lb.
January-March (44-55 weeks)	4.7 lb.	4.5 lb.
April-June (56-67 weeks)	4.8 lb.	4.4 lb.
Entire period (19-67 weeks)	4.9 lb.	4.6 lb.

Canadian Turkey Numbers Up Sharply

WINNIPEG—Number of turkeys on Canadian farms on Aug. 1 amounted to an estimated 8,235,000 birds, an increase of 18.3% over last year's total of 6,960,000. Based on reports received from turkey producers, 2,930,000 birds were marketed before the first of August, 3,075,000 are expected to be marketed from Aug. 1 to Thanksgiving (Oct. 12) and 4,444,000 between Thanksgiving and Christmas.

Anticipated output of turkeys in 1959 is placed at 10,450,000 birds as compared with 8,212,000 in 1958. This is an increase of 27% but, with the increasing incidence of broiler turkey production, the increase in tonnage will be less than the increase in output of birds. Turkey meat production is expected to be about 15% greater than in 1958.

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'Midwest Can Hold Egg Business—If Adjustments Made'

COLUMBIA, MO. — The Midwest, including many of its farm flocks, can retain its egg business—but it will take some doing to accomplish this.

That seemed to be the consensus of experts who spoke at the recent Missouri Egg Day at the University of Missouri.

Producers in Missouri will have to make extensive adjustments if they are to halt a decline in their output and shipments to other areas.

Among the speakers on the Egg Day program were Dr. E. R. Kiehl, head of the Missouri agricultural economics department; Prof. Francis Kutish, Iowa State University ag economist; Dr. Ralph Baker, economist from Pennsylvania State University, and Prof. Q. B. Kinder of the Missouri poultry husbandry department.

It was pointed out that the number of hens and pullets in Missouri declined from 21.5 million to 13.2 million between 1948 and 1958. At the same time, shipments of Missouri eggs to other states declined from 50% of total production in 1948 to only 30% last year.

In spite of the decline, Dr. Kiehl indicated that he was not pessimistic about the future of the egg industry in Missouri and the Midwest. He said he believed that the industry "can mobilize our capacity and skills to use our resources in feed and labor advantageously to retain and even increase our market opportunities."

Must Adjust

However, he said, a reorganization of the market structure will be needed. He warned that if producers and others do not make adjustment, they may lose even their own metropolitan markets.

Dr. Baker, who is well known for his study of integration in the egg industry, pointed out how quality has been improved and unit costs reduced through programs of quality control and integration.

Speaking of egg exports from the Midwest, he noted that when Missouri was shipping out more eggs, the western states were an egg deficit area. That is no longer the case, he said, and the Midwest also is being pushed out of southern markets as production expands in the South. "That leaves the fight only for the Northeast," he commented.

Suggestions

The Missouri producers were advised that they must consider the following steps if they are to maintain production and markets:

(1) Consider larger flocks in order to make use of labor-saving measures. (2) Shift production to farms close to metropolitan markets in the state. (3) Have a market before producing eggs. (4) Produce uniform and quality eggs on a quantity basis all through the year. (5) Make sales to breaking and processing plants on an annual basis and not just in periods of over-supply.

Other suggestions were that producers sell on a graded basis, do more direct retail selling, and produce more eggs in the higher price period in the fall.

Prof. Kinder, indicating the changes that are developing, warned that those who stay in the egg business will have to figure on an average price of no more than about 30¢ doz.

Farm Flocks to Stay

While there were warnings of market losses unless changes are made, Prof. Kutish also expressed the view that many midwestern farms will continue to have laying flocks, although the flocks are likely to be larger.

He said that when people are claiming that most midwestern farmers are losing money on laying flocks, they are basing their assumptions on the same cost figures used in specialized poultry operations.

"The midwestern farmer's flock is part of a complex farm business," he explained. "How much should be charged for labor of the farm wife and children—labor that would otherwise add little or nothing to the farm income? How much should be charged for buildings that are already on the farm?" On the commercial farm, these are cash costs, he indicated, but not on the midwestern farm.

Prof. Kutish said that the small flock of 50 to 150 birds is under pressure because of egg grading laws, disease problems, new equipment and procedures, marketing changes and other developments that require more skill and better management. As a result, farm families are encouraged to expand sideline flocks to sizes ranging up to 500 birds, or else to cut back to just enough birds to supply their own family with eggs. And many farmers probably will make adjustments and stay in the egg business.

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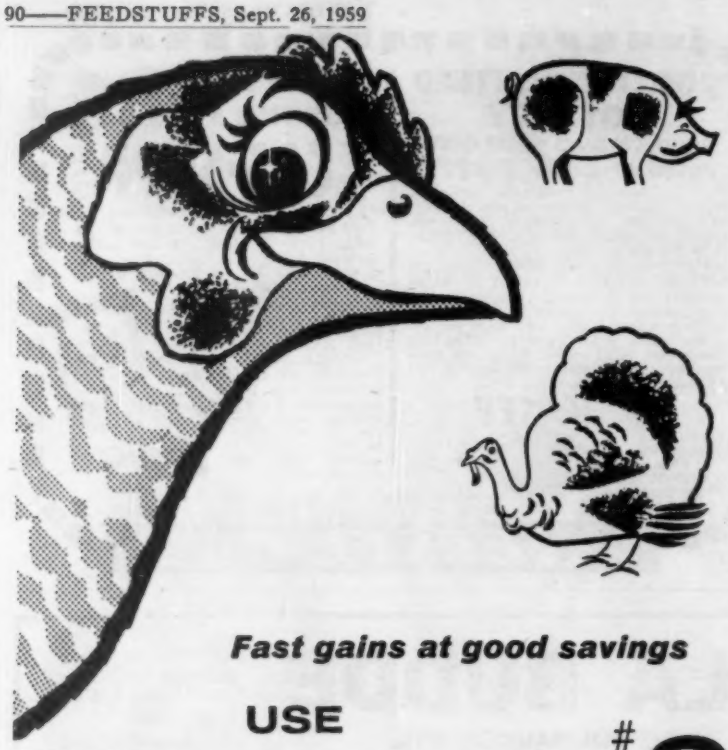

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FEEDS AND THE FOOD ADDITIVES AMENDMENT

By Samuel Alfend

Food and Drug Administration

EDITOR'S NOTE: The author of the accompanying article is chief of the Cincinnati District, Food and Drug Administration. This article is from a talk by Mr. Alfend at the Kentucky Feed Conference in Louisville. Mr. Alfend explains the provisions of the food additives amendment as it applies to feeds, including the Delaney clause.

Technological developments in this industry have been and continue to be such that it is necessary for both the state feed control officials and the Food and Drug Administration to devote an ever increasing amount of time to it. Not too many years ago animal feed was an uncomplicated food consisting simply of products of the soil used as a source of nourishment. Times have certainly changed. Animal feeds today are used not only for nutritive purposes in the usual sense, but also as vehicles for potent drugs intended to have therapeutic and growth effects on the animals consuming them. They may also contain pesticide chemical residues and other chemical substances intended to improve them in some way or other.

Instead of being concerned only with the adulteration and misbranding provisions of the food section of the Federal Food, Drug and Cosmetic Act in evaluating such feeds as was once the case, we now must consider, in addition, the adulteration and misbranding provisions of the drug section, the new drug section, the antibiotic section, the pesticide chemical section, and now, the most recent addition to the law, the food additives amendment. It is for that reason that I am happy to confine my remarks to the application of but one section of the law to this industry.

Under the terms of the Federal Food, Drug and Cosmetic Act, no distinction is drawn between food for humans and food for animals. The same applies to veterinary and human drugs. Both are considered either foods or drugs, as the case may be, under the act and must comply with substantially the same requirements.

Explanation of Amendment

The food additives amendment of 1958 was enacted to satisfy a very significant need in consumer protection. The basic law as enacted in 1938 had two major flaws with respect to its application to food.

First, it did not afford adequate consumer protection because it had no requirement that a substance be shown to be safe before it could be used in food. To the contrary, the government had to prove a substance poisonous and deleterious before it could prevent its use. This made it possible to have substances in food whose safety for such use had never been established.

Second, the act prohibited the addition in any quantity of any poisonous or deleterious substance to food except where one was required or could not be avoided in its production, in which case a tolerance level for a safe amount could be established. This requirement, while protective to the public, did serve to some extent to retard technological developments in the food field which potentially were advantageous to both industry and consumer, since, if a highly useful substance was found to be poisonous or deleterious in large quantities, its use, even in amounts known to be safe, could not be permitted unless it was required in production or could not be avoided by good manufacturing practices.

Of course, we could not take action against foods or feeds bearing such substances unless we had evidence that they were harmful. With the rapid increase in the number of additives, many of which have not been tested adequately, it was obvious that there was a loophole in the law's protective provisions.

In 1950 the House of Representatives Select Committee, commonly referred to as "the Delaney Committee," undertook investigations into the field. Out of it all came the food additives amendment, the primary purpose of which was to close the loophole in the law that permitted the use of untested substances in food. At the same time, the amendment opened the door to greater technological developments.

This amendment says, in effect, that any substance which may become a component of food for man or animal, and that has not been shown to be safe for its intended use, as well as food containing it, will be deemed to be adulterated. There is no requirement that the

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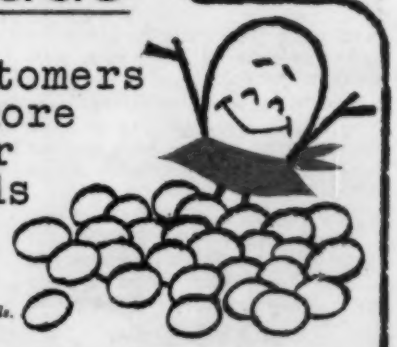

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substance must be shown to be harmful before its use can be prohibited; it is only necessary to determine that it is one whose safety has not been established under conditions specified in the amendment for the use in question.

Safety is established by submitting to the Food & Drug Administration a petition containing data showing that the substance is safe for its intended use. Excused from this requirement are substances that are generally recognized by appropriately qualified experts as being safe for their intended use in food, and substances that were approved or sanctioned prior to the enactment of the amendment, pursuant to the applicable provisions of the Federal Food, Drug and Cosmetic Act, the Meat Inspection Act, or the Poultry Products Inspection Act. Such exemptions are limited only to the specific conditions set forth in the sanction. Such substances are not exempt for other uses. Also exempt are pesticide chemicals used or intended for use in or on raw agricultural commodities. These are subject to the pesticide chemicals admendment to the Federal Food, Drug and Cosmetic Act.

Direct and Indirect

The amendment deals with both direct and indirect additives. Examples of a direct additive would be an antioxidant or drug added directly to an animal feed. Examples of an indirect additive would be a residue of a drug or its conversion product in the meat, milk or eggs of a treated animal. In the latter instance it would make no difference whether the drug had been administered as a feed component or by such means as injection. The amendment has other applications which we need not discuss at this time.

Any substance subject to the amendment may not be used in or on food except pursuant to a specific authorization secured in advance of its use through the clearance provisions of the amendment. The law sets forth a procedure whereby any person wishing to use an additive may submit a petition requesting such authorization. The petition must set forth the name of the proposed additive, including its chemical identity and specifications. It must tell how the additive is to be used and the technical effect that it is intended to achieve. It must furnish methods of analysis for determining the presence of the additive or its conversion products in or on food. Finally, it must set forth complete toxicity data showing that the additive is safe for its intended use.

The Food and Drug Administration must, on the basis of the data presented in the petition and that otherwise available to it, decide whether or not the proposed additive may be permitted, and if so, under what conditions. When it is decided to permit the use of an additive, a regulation setting forth precisely the conditions under which it may be used is published in the Federal Register. The order authorizing the use of the additive may or may not be in accord with the request in the petition. Where after reviewing a filed petition it is concluded that the additive in question may not be permitted in food under any circumstances, a notice to that effect

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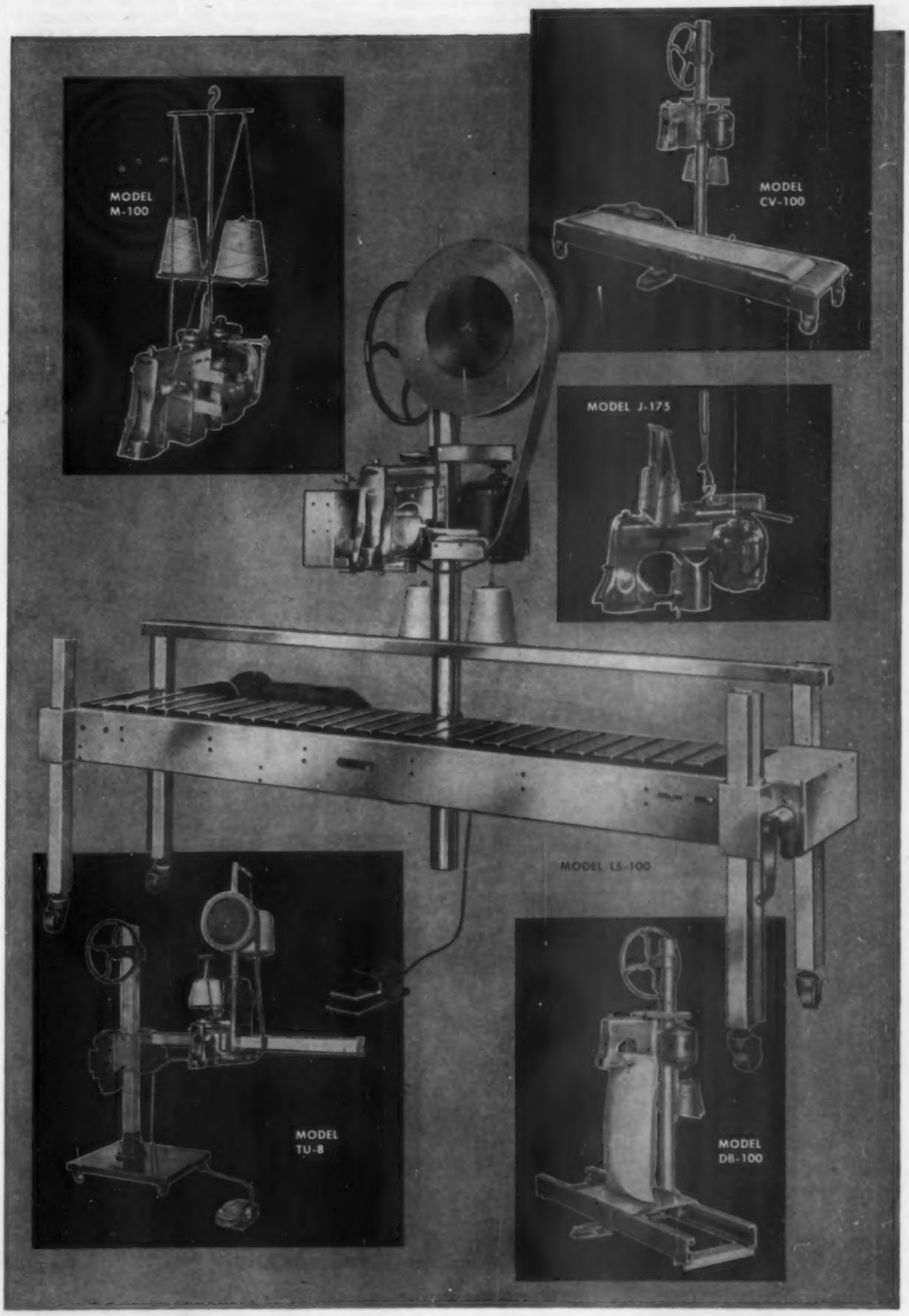

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is published in the Federal Register.

The law sets forth very specific rules that must be followed by the Food and Drug Administration in reaching a decision as to whether the use of an additive may be allowed. These are:

(1) The available data must establish that the proposed use of the additive under the conditions to be specified in the regulation will be safe.

(2) No additive shall be deemed to be safe if it is found to induce cancer when ingested by man or animal or if it is found, after tests which are appropriate for the evaluation of the safety of food additives, to induce cancer in man or animal. This, in our view, says that no quantity of such a substance, even an amount that can be shown to be safe, can be allowed through regulation.

(3) The additive must not, under the proposed conditions of use, promote deception or otherwise cause a food to become misbranded or adulterated under any provision of the act.

(4) Where it is necessary to affix a tolerance limitation in order to assure that the proposed use is safe, the tolerance set must not be greater than for the amount necessary to achieve the intended physical or other technical effect, and none will be permitted if the proposed use fails to accomplish this effect.

Once a regulation authorizing the use of an additive has been published, any person who wishes to use it may do so in conformity with the terms of the regulation without further clearance or approval from the Food and Drug Administration.

Arsenicals, Estrogens

I recognize that the application of the amendment to animal feed has given rise to much concern and speculation. This has been particularly true with respect to those feeds which contain estrogenic substances and arsenicals. Unfortunately, I am not in a position to answer all of the questions that have arisen or may arise in this regard. These are matters which are presently very much under study in our administrative headquarters in Washington. I would not care to speculate on what course future developments may take. However, I would like to lay out for you what has transpired to date.

First, the administration has interpreted the law to mean that any substance to be added to animal feed must be shown to be safe for the animal under the intended conditions of use. Where this cannot be demonstrated, authorization to use the additive will be denied forthwith. Where safety to the animal can be established, then the petitioner must demonstrate either that the edible products of the animal—meat, milk or eggs—are free of any residues of the substance and its degradation products, or where such residues are found, that they will be safe for consumption by man or other animals, as the case may be. That, in a nutshell, is the requirement the food additives amendment imposes on animal feed.

It is of interest that the first and thus far only food additive cleared under this procedure has been for an antioxidant used in animal feed. It is of further interest to note that the Food and Drug Administration, in clearing that additive for use, established tolerances for its residues in edible products of animals consuming the treated feeds as well as for levels in the feed itself.

I think that in addition to the basic application of the law itself, we might at this time look at some of the problems that have arisen because of it. Petitioners have to develop satisfactory evidence of the presence of the additive or its degradation product in meat, milk or eggs. This is not new, since the administration has always required that of feeds cleared through the new drug or antibiotics provisions. Whereas in the past no residues were permitted, they may now be allowed if, among other things, the petitioner can identify them and furnish practicable methods of analysis for determining them qualitatively and quantitatively in those instances where tolerances will be required to assure safety—which will undoubtedly be the case in most instances. As I'm sure those of you who are trained in chemistry will quickly recognize, there may be some real problems in methodology involved here.

Delaney Clause

Much has been said about the section of the amendment which deals with substances which, under certain circumstances, may induce cancer—the so-called Delaney clause. The position of the Food and Drug Administration is clearly set forth in the policy statement that has been issued in this regard. (Feedstuffs, May 30.)

Some persons outside of the Food and Drug Administration have construed this to constitute a complete freeze-out on estrogenic substances or arsenicals in animal feed, allowing persons who held specific authorizations for such use before the passage of the amendment to continue such use in accordance with such authorizations, but prohibiting any other person from ever securing similar rights. This is not entirely true. The policy statement deals only with substances meeting the statutory definition of food additives and that are known to induce cancer under the conditions stated in the amendment. Thus the first thing to consider is whether the proposed use of an arsenical, estrogen or any other substance for that matter, is generally recognized by appropriately qualified experts as safe. If it is, then it is not a food additive for that use and the terms of the amendment do not apply. If it not so recognized, then all of the provisions of the amendment must be considered.

Diethylstilbestrol and arsenic in certain forms have been shown to induce cancer under conditions specified in the amendment. This obviously does not mean that all forms of estrogens or arsenicals are also carcinogenic; however, we believe that certainly compounds of this type must be considered with great care and that before we can, pursuant to the provisions of the food additives amendment, authorize the addition of those which are properly classified as food additives to food for man or animal, we must have presented to us convincing scientific evidence to demonstrate that they do not induce cancer when ingested by man or animal, or by tests which are appropriate for the evaluation of food additives.

I recognize that I have not covered all of the aspects of this amendment and its effect on animal feeds. Instead I have tried to hit the highlights. I hope that my remarks have been helpful in bringing this new law into focus for you.

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Pelleting of Beef Rations Discussed at Texas Meeting

COLLEGE STATION, TEXAS—Pelleting of roughages and complete rations for beef cattle continues to attract a great deal of attention, and this was among the subjects discussed at the Beef Cattle Short Course at Texas A&M College.

Prof. W. T. Berry, Jr., reviewed a considerable amount of research information on the effects of pelleting on performance and feed utilization and arrived at these conclusions:

1. Pelleting feeds for beef cattle offers many advantages which currently may be less than the "high cost" of fine-grinding and pelleting. Progress is being made to lower these costs.

2. Pelleting roughages (especially those of low quality) has shown the greatest and most consistent nutritional advantages.

3. Self-feeding pelleted complete rations simplifies cattle feeding, but the correct formulas and physical characteristics of the pellets have not been settled. However, there are a few guides to follow: (1) limit concentrates to about 35-40% of the mixture; (2) adjust types of roughages to attain a crude fiber content of about 20-22%; (3) use the smaller size pellets (¼ to ⅜").

4. Pelleting only the grain portion is relatively inexpensive and based on limited reports merits further consideration.

5. Fine-grinding and pelleting practically eliminate cud chewing, hasten the movement of feedstuffs along the digestive tract, usually bring about a total energy loss less than associated with coarsely ground unpelleted feeds, increase propionate production which in turn is associated with more efficient gains.

6. Cooking concentrate portions of a mixed fattening ration has been associated with a higher propionate production—hence more efficient gains. Whether or not the heat of pelleting brings about similar results remains to be proven. We will continue to hear more about heating.

7. It therefore appears that the physical factors (grinding, heating, pelleting) which change the movement of feed through the digestive tract, which affect the growth and nature of the microorganisms, and those which cause variation in the mechanical work involved in prehending, masticating and cudding feed, may be as important as the chemical composition of the feed in determining its nutritive value.

As part of a talk on mechanized handling of roughages, Prof. N. K. Person included information for the cattlemen on costs of setting up and operating a pelleting plant. Taking in all costs, he presented college data indicating a cost of $8.86 per ton in a plant producing 2 tons per hour and $5.84 in a plant producing 5 tons per hour. Where it is necessary to add only pellet mill equipment to existing facilities, the costs would be $7.53 and $5.19, respectively, he indicated. These are for processing and pelleting a mixed ration containing hay, grain and molasses.

As part of a report on formulating rations for fattening cattle, Prof. J. K. Riggs commented on studies of roughage-concentrate ratios. It is obvious, he said, that the best ratio for fattening steers is far from settled. Experiments at a number of stations indicate that cattle may tolerate a much wider range than is ordinarily considered possible with little effect on gains. The picture is somewhat confused, however. He cited data showing how gains were similar when steers were fed rations containing 35 or 70% concentrates. Other experiments have shown similar results. When rations are pelleted, there is another factor to consider, too.

At any rate, the results in general indicate a lack of knowledge of the effect of physical preparation of feeds on their nutritive value. It also indicates a lack of knowledge of the whole matter of factors which influence feed intake.

High-Moisture Sorghum

Prof. Riggs also discussed high-moisture sorghum grain for finishing beef cattle. He summarized his report as follows:

(1) Sorghum grain can be successfully harvested at moisture levels of 25 to 30% with standard self-propelled combines by slowing the ground speed and maintaining cylinder speed at that used for threshing small grains.

(2) The moist sorghum grain can be successfully stored without spoilage or loss in an air-tight glass-lined silo.

(3) Unground sorghum grain containing 23% moisture failed to produce satisfactory gain or finish on yearling steers during a 126-day feeding period, and the grain requirement per 100 lb. of gain was 60% higher than for similar steers fed the same grain in ground form. The unground grain is therefore considered unsatisfactory.

(4) Ground moist sorghum grain produced gains on fattening steers equal or superior to ground dry sorghum grain.

(5) Steers fed the moist grain required 18% less dry matter from the grain and 12% less total dry matter per 100 lb. of gain than similar steers fed ground dry grain. Additional work is being conducted to determine if cattle will consistently perform more efficiently on high moisture sorghum grain.

(6) Both types of ground grain were palatable and their daily intake was essentially the same. No difficulty was encountered in grinding the grain or in keeping the steers on feed.

(7) Selling price was the same for both groups of cattle fed ground grains. Dressing percentage and carcass grades did not differ significantly.

Additives

Reviewing feed additives for beef cattle, Prof. H. O. Kunkel first noted that both feeding and implanting stilbestrol are now widely used. Implantation does not seem to be advisable with heifers, he indicated. Smaller dosages of stilbestrol may be needed for cattle on pasture than have been recommended in drylot.

If disease level is low, antibiotics tend to show less response, he said,

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MATTRESS FOR COWS

A British dairy farmer believes the only way to attain a high milk yield is to keep the cows happy and comfortable, reports the British Information Services.

The farmer, Major Anthony Bramley, is now touring the U.S. demonstrating his latest effort to please cows—a foam plastic mattress that eliminates the need for straw bedding.

Mr. Bramley says the mattress, which took nearly three years to develop, will "revolutionize dairy farming." It consists of a solid foam plastic filling enclosed in a flexible vinyl covering.

but the disease-free animals do better than antibiotic-treated sick animals. Since no one knows when disease will strike, it may be desirable to use antibiotics wherever practical.

Prof. Kunkel said that the beneficial effects of the tranquilizer hydroxyzine have not been as consistent as with stilbestrol but that the low level required as compared with the average response seems to justify its use. It may be more effective when stilbestrol is administered.

Results with a chemobiotic, he said, "are generally indefinite, with experiment stations in the South and Midwest generally reporting little or no benefit, while stations in the Northwest report some benefit. Results may depend on environment and ration constituents."

Prof. Kunkel said gains and feed efficiency are not affected by use of ethanol when grain (starch) makes up the major carbohydrate portion of the diet. There is some evidence that carcass quality and marbling are increased, "but the high cost of the ethanol offsets most of its beneficial effects," he said.

Any effect of Tapazole seems to be a short-time effect, he continued, and more information is needed. The unpalatability of phenothiazine requires mixing with relatively large quantities of concentrates, according to Prof. Kunkel, but when large amounts of concentrates are fed, the usual parasite infection is of little consequence. Dried rumen organisms, he said, have not proven to be of "significant benefit." New microbial enzyme preparations have shown promise with low moisture corn but not with high moisture corn, he pointed out.

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MADISON, WIS. — For the 10th consecutive year, the Wisconsin Alumni Research Foundation is underwriting a national public service advertising program aimed at combatting rats.

The foundation's program appears regularly in farm publications during fall and winter months, when cold weather forces rats indoors. The ads will appear in a long list of national farm publications from September through next March. They show farmers every rat costs as much as $20 a year by killing chickens and eating or contaminating grain. The ads also explain how farmers can kill rats and mice with the rodenticide Warfarin, developed by the research foundation.

Foundation officials said dealers are encouraged to cooperate with the program by setting up tie-in displays reminding customers of the seasonal increase in rat damage and calling attention to the need for an effective rodenticide.

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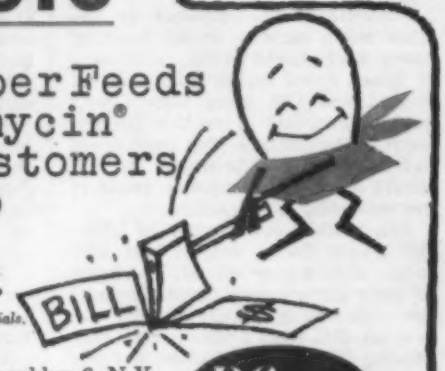

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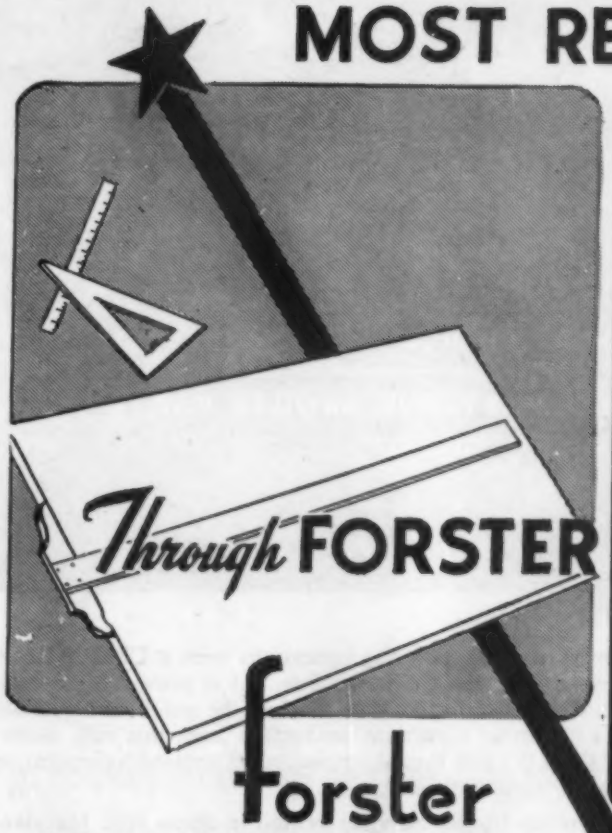

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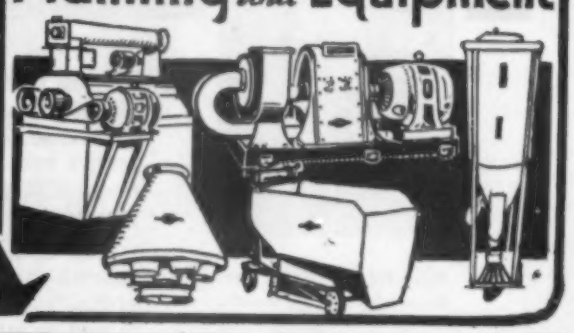

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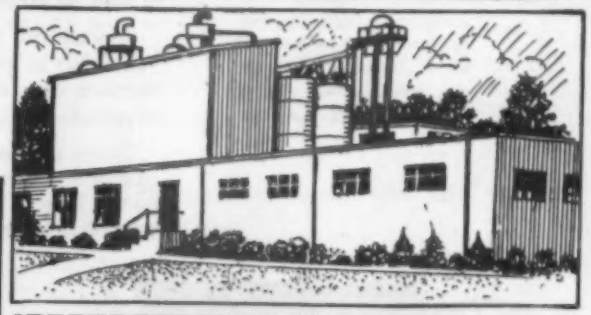

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Heavy White Breed Poult Output Gains

WASHINGTON — Boosted by another sharp increase in the hatch of heavy white breed poults, production of heavy breed turkey poults during August was 17% more than a year earlier, according to the U.S. Department of Agriculture. The light breed hatch was off for the second straight month after earlier running ahead of corresponding 1958 months.

Heavy white poult output of 1,004,000 poults during August was 29% larger than a year earlier. The hatch of other heavy breeds (mostly bronze) not only was seasonally low but also was off 45% from a year earlier, continuing the downtrend which has prevailed this year. The total of heavy breeds other than whites for the month was only 81,000.

The total heavy breed hatch during August was 17% more than a year earlier.

For the period from January through August, the hatch of heavy white breed poults of 17,076,000 was up 30% from the same period last year. Other heavy breed production of 51,311,000 January through August was down 7%. The number of all heavy breeds hatched during these months was about the same as a year earlier.

The number of light breed poults hatched in August totaled 1,055,000, down 4% from August, 1958. The January through August hatch of light breed poults of 14,322,000 was up 20% from the same period last year.

The cumulative hatch January through August of all turkey poults totaled 82,709,000, 3% more than were hatched during these months in 1958.

USDA said turkey eggs in incubators on Sept. 1 indicate that the number of heavy white breed poults and other heavy breed poults hatched in September will be larger than a year ago. The hatch of light breed poults will be smaller.

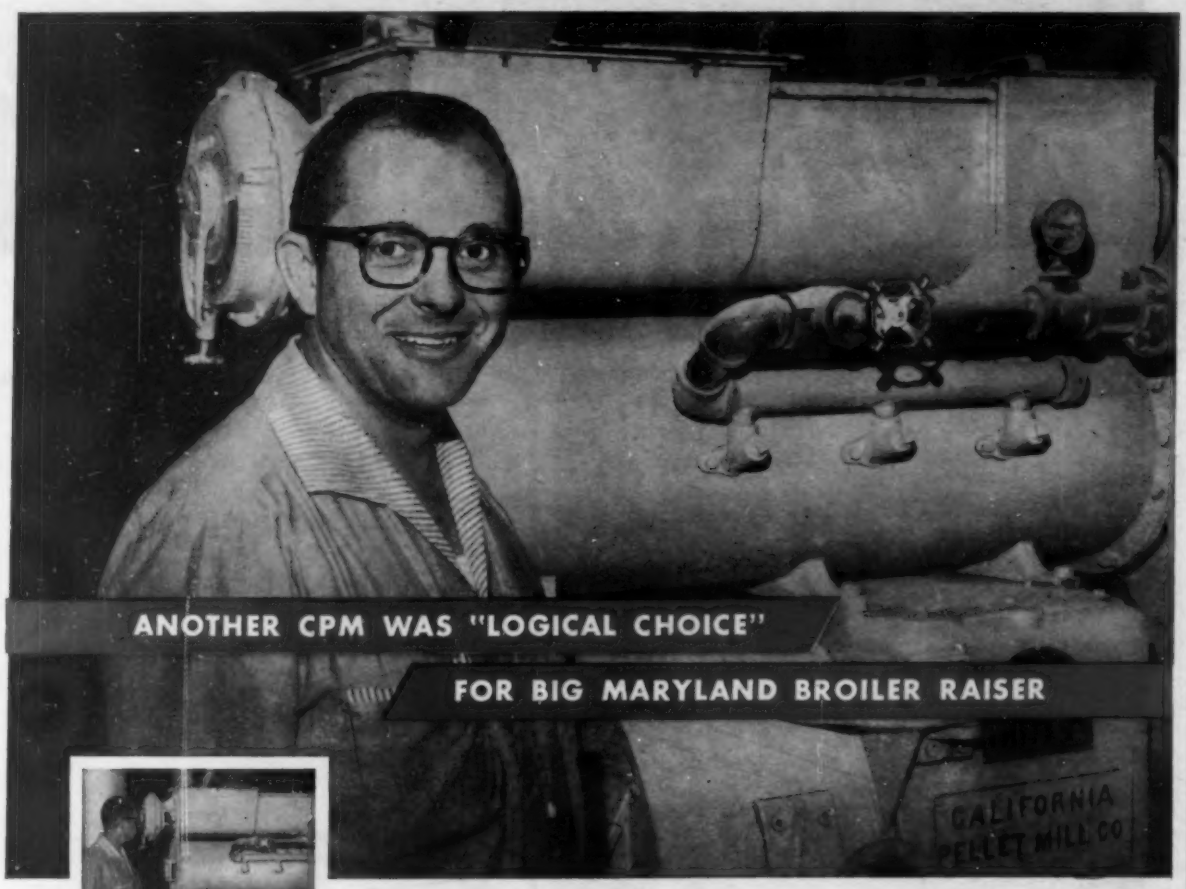
California Gets $8,000

BERKELEY, CAL.—Almost $8,000 has been received recently by the division of agricultural sciences, University of California, for research projects in animal science.

The following amounts were given: $3,000, Commercial Solvents Corp., for research in poultry husbandry; $2,800, National Science Foundation, for research on pyruvate metabolism in the cow; $1,000, American Dehydrators Assn., for research on the feeding of dehydrated alfalfa pellets as a supplement for range sheep, and $1,000, Willis W. and Ethel M. Clark Foundation, for research in veterinary medicine with small animals.

ENVIRONMENT CONTROL UNIT

URBANA, ILL.—A new farrowing house "environment control unit" designed to provide optimum year-around farrowing environment for sows and litters is the goal of a new University of Illinois research project.



Here's the CPM "HYFLO" that has boosted pelleting capacity for Mr. Fulton, adding to his profits by reducing the cost per ton. There are eight models in California's complete line, with capacities ranging from 1 to 15 tons per hour.

Chuck Fulton started his pelleting operations with a CPM "Master" Model—smallest mill in the California line, but it proved to be a real workhorse. Its fine performance, plus the help he got from CPM field service men in obtaining maximum production from this mill, made a new CPM "HYFLO" his logical choice when expanding operations required a mill of higher capacity.

The Chuck Fulton Broiler Service, located in Snow Hill, Maryland, raises 3½ million broilers a year and is expanding rapidly. About 75% of his "HYFLO" production goes to feeding his own chickens; the rest is sold to other poultry and livestock growers in the area.

Among the features Mr. Fulton likes most about his "HYFLO" are "the ease of starting the dies, trouble-free operation as much as 18½ hours a day, 6 days a week, and the type of skilled servicing—when required—that shows CPM is a good company to do business with!"

There is *one* California Pellet Mill that will best fit *your* needs. CPM research, experience and knowhow as pioneers in the pelleting field, and as the largest manufacturer of pellet mills, will be helpful in your selection. Write for full information or call your nearest CPM representative.

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A N.Y. policeman was approached by two young lady tourists from out of town, seeking directions to Rockefeller Center. An amiable Irishman, he answered their question and then said, "And where might ye be from?" One said, "Wisconsin" and the other "Minnesota." It took him a moment to digest this information and then he shrugged his shoulders: "Ah, well," he said, "we're all God's creatures."

◆ ◆ ◆

Any man who thinks he's more intelligent than his wife is married to a smart woman.

◆ ◆ ◆

Seems this guy who was driving a new model suddenly veered off the road, hit soft dirt, and the car rolled over four times before winding up on its top in a newly-plowed field.

The driver had just pulled himself out of the demolished car when a highway patrolman came up to him, took one long look and asked, "Have you been drinking?"

The guy stared at him and said flatly, "Hell yes, I've been drinking. What do you think I am, a stunt driver?"

◆ ◆ ◆

Traveler (being shown dingy hotel room): "And what does this pigsty cost?"

Hotel manager: "For one pig, $3; for two pigs, $5."

◆ ◆ ◆

Curious fly,
Vinegar jug,
Slippery edge;
Pickled bug.

◆ ◆ ◆

"You'll have to handle this child very carefully," the child specialist said to the mother. "Remember, you're dealing with a sensitive, high-strung little stinker."

◆ ◆ ◆

A disreputable character in court had just admitted being drunk.

"Did you have to drink the whole bottle at one sitting," demanded His Honor.

"Couldn't help it, Judge," answered the inebriate, "I lost the cork."

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A grinding and mixing program is building volume fast for many dealers. If you want help in setting up your program on a sound basis, get in touch with Gooch. You might as well benefit from the experience of successful Authorized Red Circle Mixers . . . and Gooch.

For more information, simply contact Gooch Feed Mill Company at the address nearest you.

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USDA Studies Safe Levels of Alfalfa Meal for Poultry

WASHINGTON—Results of study by the Agricultural Research Service of the U.S. Department of Agriculture and of other work are helping to establish safe limitations for the feeding of alfalfa meal to poultry. A recent issue of Agricultural Research, an ARS publication, reports that USDA research indicates how much the meal content of poultry feeds can be increased without adverse effects from alfalfa saponin on laying hens.

For example, B. W. Heywang, ARS poultry husbandman, already has found that while the saponin in alfalfa does decrease egg production and diet consumption of laying hens, this happens only while the meal is being fed and only if high enough levels are fed. The undesirable results disappear as soon as the high-saponin meal is discontinued, according to Mr. Heywang's findings.

Also, there are indications that these ill effects probably would not occur at the level alfalfa meals normally are fed, although the meals vary greatly in saponin content and, thus, in their retarding effect. These amounts, ARS reports, generally are within smaller limits than those used in USDA tests.

The Agricultural Research article notes that poultry researchers have known for some time that dehydrated alfalfa meals unusually high in saponin can depress growth, diet consumption and feed utilization of chicks and egg production of layers. More recent evidence, says ARS, indicates that sun-cured alfalfa meals have the same effects.

Saponin—a glucoside commonly found in many plants—generally has been pinpointed as the cause of the

OFFICE COFFEE BREAK

LAWRENCE, MASS. — There are not any scheduled time-consuming coffee breaks for office employees at the H. K. Webster Co., Blue Seal Feeds, in Lawrence. Instead, each office girl takes a turn wheeling the serving table from office to office with coffee pot, sugar, cream and crackers.

Coffee is poured into paper cups and a paper napkin is handed out with each serving. The girl doing the serving prepares the coffee in a small rear kitchen.

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damage. There has been conflicting evidence, however, relative to saponin's role in producing this damage. So, USDA scientists set up feeding trials with saponin from two sources to check its effects on laying hens.

Mr. Heywang conducted two saponin feeding trials of 50 days each at the Southwest Poultry Experiment Station, Glendale, Ariz. He was assisted by A. R. Kemmerer, University of Arizona, biochemist, and C. R. Thompson, ARS chemist.

White Leghorns, individually caged and all laying at about the same rate, were fed diets containing no saponin. Then in the first experiment, the hens were placed on a diet containing either .4% saponin extracted from alfalfa, or one containing .26% saponin supplied by sun-cured alfalfa meal. In the second experiment, birds on the saponin diets were put back on a saponin-free diet, and the birds on a saponin-free diet were given saponin.

Both levels of saponin decreased egg production during both experiments, although birds on the alfalfa meal did better than those on the extracted alfalfa saponin. For example, birds on the meal laid about 73% as many eggs in the first experiment and 66% as many in the second, as those on a saponin-free diet. Hens fed the extracted saponin laid only about 51% as many eggs during the first experiment, and 43% as many during the second, as those without saponin. Neither diet, however, had any lasting harmful effect on egg production.

Birds put back on a saponin-free diet were laying within two weeks at the same rate as before.

Saponins in both experiments lowered diet consumption and body weight. But neither of the saponins had any effect on egg weight.

R. D. Nord Promoted By KVPD Company

MILWAUKEE — Robert D. Nord has been named vice president and manager of the agricultural division of Klau-Van Pietersom - Dunlap, Inc., according to George J. Callos, president.

R. D. Nord

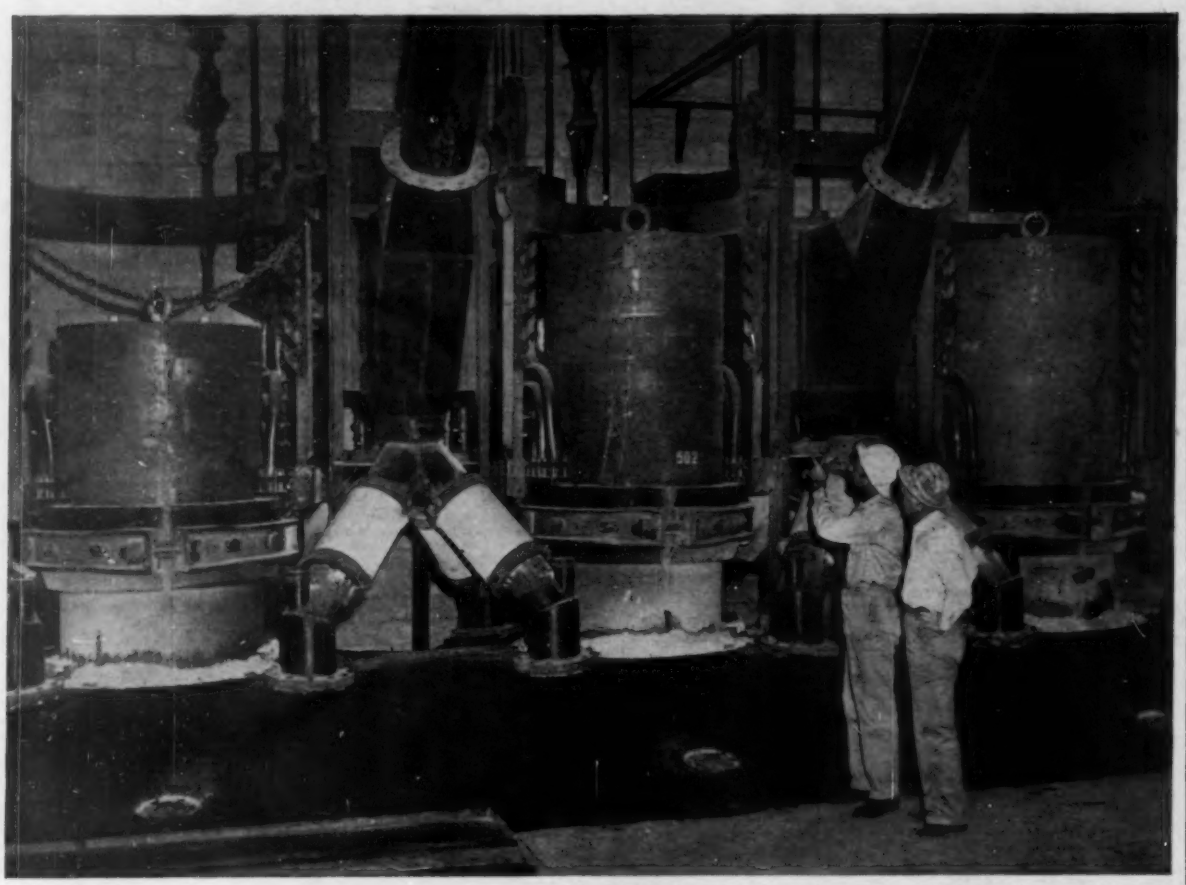
Mr. Nord joined the agricultural division of KVPD in 1956 as an account executive. His previous experience includes work as information specialist for the South Dakota Agricultural Extension Service; six years as an advertising supervisor for Deere & Co., and two years with Aubrey, Finlay, Marley & Hodgson advertising agency.

He is a 1947 graduate of South Dakota State College, majoring in agricultural economics and printing and rural journalism.

Mr. Nord succeeds Lyle C. Abbott, who has resigned to join Gardner Advertising Co. in St. Louis as an account supervisor.

NEW FEED MILL

MELROSE, MINN. — Construction of the new Melrose (Minn.) Feed Mill is underway. Harold Rothfork, St. Joseph, is building the mill and anticipates opening for business Oct. 15. The major part of the new feed mill business will consist of custom grinding, mixing and the sale of Vit-A-Pep feeds, according to Mr. Rothfork.



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Classified advertisements received by Tuesday each week will be inserted for the issue of the following Saturday. Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. In figuring cost of your classified ad . . . each word, abbreviation, telephone exchange and number, set of initials, or group of figures counts as a word. To the number of words in your want ad itself add six (6) words for your name and address or name and address of your firm. This applies for both direct-reply ads and for blind ads containing a box number. If an ad is keyed, care of Feedstuffs, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $12.00 per column inch. No discount on ads ordered for more than one insertion. All Want Ads cash with order.

MACHINERY WANTED

ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 24, Md.

WANTED—MACHINERY FOR COMPLETE feed mill, including pellet mill line. Reply Ad No. 5231, Feedstuffs, Minneapolis 40, Minn.

WANTED—USED MARION MIXER, 1 TO 3 ton size, and used 50 to 100 gallon emulsifier for heating and mixing liquids. Gurley Milling Co., Princeton, N. C.

FOR IMMEDIATE CASH WE WILL PUR-chase Rotary Alfalfa Dryers or other types of rotary dryers. Address Ad No. 5192, Feedstuffs, Minneapolis 40, Minn.

WANTED TO BUY — RICHARDSON scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

MACHINERY FOR SALE

HAVE 15-TON TRUCK PLATFORM SCALE in good condition. Address Ad No. 5248, Feedstuffs, Minneapolis 40, Minn.

1958 CENTURY MODEL 100 H.P. CALI-fornia pellet mill and cooler. Steve Olmstead, BU 23700, West Fargo, N. D.

JAY BEE PORTABLE MILL AND MIXER on 6500 Chevrolet. Maurice Blocker, Waukon, Iowa; Telephone 583J.

COMBINATION BULK TRUCK, 9-TON SECO on 1959 GMC 374. Will sell body or both. Owenton Feed Service, Owenton, Ky.

GOOD SELECTION OF USED PORTABLE mills, terms. Iowa Portable Mill Co., Oelwein, Iowa.

FOR SALE—SEVERAL STEAM BOILERS, 20 H.P., 30 H.P., and 50 H.P. Call or write Evergreen Mills, Ada, Okla.

GEHL HAMMER MILL, 20", WITH 7 screens and blower. Good condition. The Abel Hatchery, Cedar Springs, Mich.

CHAMPION MOBILE GRINDER AND mixer units. Champion Portable Mill Co., 2105 Como Ave. S.E., Minneapolis 14, Minn.

FEED MIXER, 1-TON CAPACITY, GUAR-anteed first-class throughout, 5 H.P. motor drive. Address Ad No. 3479, Feedstuffs, Minneapolis 40, Minn.

DAFFIN MOBILE UNIT, 3 YEARS OLD, 1958 Ford 700, 25,000 miles, excellent condition. Cash or contract. Lapeer Grain Co., Lapeer, Mich.

WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P. O. Box 574, Jefferson City, Mo.

DAFFIN PORTABLE MIXER AND GRIND-er. Good condition. Price $3,000. Jacob J. Vargo, R.R. No. 2, Box 330, Perkasie, Pa.; Telephone ALpine 7-6483.

FORD STRAIGHT TRUCK T-700 1958-powered tandems, 15 speeds forward, Pakmaster 18 ft. combination bulk or sack feed and grain box. Low mileage, like new. Phone 319 Green. C. A. Wymore, 104 W. 2nd St., Mt. Pleasant, Iowa.

SALE: ALUMINUM TANKS, 22,000, 18,000, 3,000 gal. Dewatering presses; Davenport No. 1A, 3A, Louisville 8-roll 36". 3—Louisville rotary steam tube dryers, 6'x50', 6'x 25'. 4' dia. stainless steel spray dryers. Perry, 1403 N. 6th St., Philadelphia 22, Pa.

ONE DODGEN MODEL 12T-5D BULK feed body. Capacity 7 tons with extensions, mounted on 1958 International truck, 8,000 actual miles. Priced to sell. Sanders Co., Inc., Alpha Road, Greenwich, Ohio.

FOR SALE—16-FT. WINONA DRAG WITH Reeves drive and 2 H.P. TEFC motor. Used two years. Very good condition. New cost $950—will sacrifice for $250. Hycrest Feed Mill, Glencoe, Minn.; Phone UN 4-3617.

DAFFIN MOBILE FEED UNIT, 1954— This unit is mounted on Ford F 700 chassis, rebuilt Buda Diesel motor, new paint job on truck and equipment. This unit is in first class condition. Priced right. J. H. Croasdale, Ringoes, N. J.

MACHINERY FOR SALE

ONE USED 1952 HIGHWAY TRAILER, equipped for bulk feed delivery, 24 ft. long, complete with full length screw, 15 H.P. gasoline engine, and 2-piece unloading conveyor. Good condition. Contact Fred Cook, Archer-Daniels-Midland Co., Minneapolis 2, Minn.

FOR SALE—ENCLOSED MOTORS; RICH-ardson Scale; truck scales, hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

1½-TON KELLY DUPLEX MIXER, 7½ H.P. motor; Duplex hammer mill, model L, crusher attachment, 50 H.P. motor; 50 H.P. starter and motor; Duplex corn cracking machine, 4 sizes corn, 5 H.P. motor; corn sheller, 175 bu. hour, nearly new, 7½ H.P. motor; Zip molasses meter, 11.7 lb. and pump. Will sacrifice all or part. C. S. Holder, Frankford, Del., phone Selbyville 8845.

JUST LIKE NEW CHAMPION MOBILE mill and mixer. Propane mill motor, factory new six weeks ago. Truck motor new last week (no short blocks). Both engines latest overhead valve V8's. Cab-forward Ford in excellent shape. Mill and mixer completely gone over. Will give written guarantee. Full price $5,450. Will finance $2,450 at 6% for two years. Call Advance Farm Service, Madison, S. D.; Clinton 6-4266.

BUSINESS OPPORTUNITIES

FEED MILL IN CENTRAL MINNESOTA in rich farming area. Well equipped. Hatchery available if desired. Address Ad No. 5228, Feedstuffs, Minneapolis 40, Minn.

FOR SALE — FEED MANUFACTURING plant. Located in Sioux City on railroad. Pelleting and mineral equipment. Money maker. Owner wants to retire. Sell on terms. P. O. Box 1251, Sioux City, Iowa.

FOR SALE — RETAIL FEED BUSINESS, southern Idaho, $350,000 yearly sales—average carload — national brand, feed weekly, grinder, mixer, steam roller, molassifier. Best agricultural section and potential. Address Ad No. 5218, Feedstuffs, Minneapolis 40, Minn.

TO SETTLE PARTNERSHIP — FEED, seed, fertilizer and farm supply business and bottle gas in Illinois. New steel building and equipment on highway. Over $100,000 per year gross. Address Ad No. 5223, Feedstuffs, Minneapolis 40, Minn.

HATCHERY WITH 40,000 CAPACITY AND feed store. Doing business. Daffin mobile unit. Owner operated. Only 1,800 hours. Priced together or separately. Located in west central Illinois. Will talk terms. Address Ad No. 5211, Feedstuffs, Minneapolis 40, Minn.

DISTRIBUTOR WANTED FOR TEXAS — Nationally known animal health products company wants a reliable distributor with salesmen. Can offer good discount and point of sales helps. Only Dun & Bradstreet listed firms need apply. Address Ad No. 5215, Feedstuffs, Minneapolis 40, Minn.

ARE YOU SELLING IN IOWA? LONG established central Iowa business, looking for additional lines or products to handle. Present products very seasonable. Warehouse with truck docks and rail facilities. Well acquainted with the feed, seed and implement trade at all levels. Can furnish good business and bank references. Our principals know of this ad. Address Ad No. 5186, Feedstuffs, Minneapolis 40, Minn.

FOR SALE

300 tons per month complete feed plant serving a radius of 100 miles in southern Idaho, Nevada, Utah—terrific potential—write for free brochure and further information. Address Ad No. 5253, Feedstuffs, Minneapolis 40, Minn.

Use Want Ads for Results

HELP WANTED

SALESMAN TO CALL DIRECTLY ON farmers to sell aluminum gate on commission and incentive basis. Contact: Pioneer Industries, Sioux City, Iowa.

SERVICE MAN FOR KANSAS CITY, MO.— Will travel Midwest area. Write stating qualifications, age and salary expected. Address replies, W. G. Trapp, California Pellet Mill Co., 1114 East Wabash Ave., Crawfordsville, Ind.

FEED CHEMIST TO SET UP NEW LABO-ratory for midwestern feed manufacturer. Initial work to be basic analyses of inbound ingredients and outbound feed. Address Ad No. 5233, Feedstuffs, Minneapolis 40, Minn.

EDITORIALLY TRAINED MAN WITH working knowledge of country grain elevators for position on trade paper. Give all qualifications, experience, education, family, references, salary, etc. Write Ad No. 5170, Feedstuffs, 2832 Board of Trade Bldg., Chicago 4, Ill.

SALESMAN—WELL KNOWN FEED MAN-ufacturers seeking salesman experienced in agricultural field for work in Iowa territory. This is an opportunity to establish a satisfying career in a growing industry. Write Sales Manager, P. O. Box 1663, Cedar Rapids, Iowa.

SALESMAN — NATIONAL FEED MANU-facturer seeking salesman experienced in agricultural field for work in Michigan territory. This is an opportunity to establish a satisfying career in a growing industry. Write with qualifications to W. G. Stokes, District Sales Manager, 12730 Beck Road, Plymouth, Mich.

FEED MILL SUPERINTENDENT — ME-dium-sized, growing AAA-1 Midwest manufacturer needs man experienced in directing working force for most effective manpower utilization. Write giving complete background and qualifications. Address Ad No. 5172, Feedstuffs, Minneapolis 40, Minn.

WANTED—SALESMAN WITH AGRICUL-tural background by leading feed mill equipment manufacturer to call on feed mills in eastern Indiana. Complete line of milling equipment. Engineering knowledge helpful. Excellent opportunity. Address Ad No. 5247, Feedstuffs, Minneapolis 40, Minn.

MIDWEST'S FASTEST GROWING FEED company needs qualified Illinois, Iowa men capable of training dealers in resale work in the country. New bulk feed system. Dealers sell without any investment. Guaranteed salary plus commission. Only qualified men need apply. Send resume. All replies confidential. Address Ad No. 5241, Feedstuffs, Minneapolis 40, Minn.

MANUFACTURER'S REPRESENTATIVE — Well known manufacturer has opening for man now calling on feed dealers to sell special fast selling product to dealers, good commission, payable monthly, full credit on repeat business, excellent sales promotion program. For details give territory now covering and how often. All replies confidential. Write R. F. Davis, Box 5020, Minneapolis 6, Minn.

SALES ENGINEER — FAMILIAR WITH feed milling machinery, pellet mills, coolers, liquid blending equipment, feed mill layouts. Age 30 to 40, engineering background, heavy emphasis on sales. Interested in high earnings $15,000 per year or better. Travel Monday through Friday. Sober and reliable. Only man possessing above qualifications and presently successful need apply. Address Ad No. 5199, Feedstuffs, Minneapolis 40, Minn.

POSITION OPEN

Excellent opportunity, experienced animal feed nutritionist, 30 to 40 years of age, married, capable handling duties pertaining to managing department, assist sales, advertising departments, nutritional promotion, public speaking. Sound, progressive Middle West feed manufacturer. Answer by letter giving educational background and business experience, with references, to Box No. 5239, Feedstuffs, Minneapolis 40, Minn.

MANAGER FOR CENTRAL OHIO ELEVATOR AND FEED STORE

Excellent facilities for grinding, mixing and grain handling.

Very good opportunity for an aggressive individual experienced in merchandising feed and grain.

Reply to John W. Eshelman & Sons P. O. Box 380, Circleville, Ohio

HELP WANTED

TRAFFIC MANAGER FOR MEDIUM sized feed mill, located in Midwest. Write giving qualifications and background. Address Ad No. 5224, Feedstuffs, Minneapolis 40, Minn.

FEED ADVERTISING

Assistant Ad Manager position with nationally distributed feed company. Open to man with feed advertising experience and ability to write compelling copy to dairy, beef, poultry farmers. Age 25-35. Send complete resume and samples of writing to ad No. 5243, Feedstuffs, Minneapolis 40, Minn.

SITUATIONS WANTED

SALESMAN, MARRIED, SCIENCE DE-gree, 12 years' successful sales background, desires position sales vitamin, mineral, feed supplement, animal health southwestern states. Address Ad No. 5236, Feedstuffs, Minneapolis 40, Minn.

MANUFACTURERS' REPRESENTATIVE seeks additional line. Established following southwestern states, feed manufacturers, dealers, hatcheries, allied industry. Address Ad No. 5235, Feedstuffs, Minneapolis 40, Minn.

PRODUCT AND PROCESS DEVELOP-ment, Ph.D., university employed. Years in formula feeds, premixes, concentrates, canned pet foods. Consultant in computer formulation. Desire consulting work, plant ownership or partnership. Address Ad No. 5232, Feedstuffs, Minneapolis 40, Minn.

SALES MANAGER AVAILABLE AT ONCE —Seven years' national professional sales, General Foods Corp. (headquarters), 7 years' Ralston Purina Co. Leaving as member of eastern region staff-extensive personnel and management of men with manufacturers, distributors, wholesale and retail feed outlets and consumers. Thorough workable knowledge of all phases of dog food industry, livestock and poultry feeding and management, dealer and market development, adv. local and national public speaking, and some knowledge of feed formulation. Age 42. Best of references from top management of General Foods and Ralston Purina. Will locate in any area that offers a sound future in line with services rendered. Address Ad No. 5249, Feedstuffs, Minneapolis 40, Minn.

EQUIPMENT FOR SALE

Buy Only Seedburo
Guaranteed Factory Rebuilt

STEINLITE Moisture Testers

Remember all Seedburo Steinlites are rebuilt by the Fred Stein Laboratories in Atchison, Kansas, who are the manufacturers. Each unit is completely rebuilt and carries full year guarantee. For details and prices write Dept. FS.

SEEDBURO EQUIPMENT CO.
618 W. Jackson Blvd., Chicago 6, Ill.

MISCELLANEOUS

Buy Only Burrows
Guaranteed Factory Rebuilt
MOISTURE TESTERS

All makes used electric testers. Carefully reconditioned by factory trained electronic engineers. Guaranteed for one year. $100.00 and up. FREE 200-page catalog of grain and feed equipment.

BURROWS EQUIPMENT COMPANY
1316-C Sherman Avenue
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FOR SALE
Feed & Grain Handling & Processing Equipment
NEW & USED

Scales, Hammermills, Feed Mixers, Sewing Machines, Elevators, Pellet Mills, and Grain Cleaners

E. H. Beer & Co., Inc. Ibsen Ave. & Newkirk St. Balto. 24, Md.

Highway Equipment Appoints Distributor

CEDAR RAPIDS, IOWA — Heil Northeast Products Corp., South Burlington, Vt., has been named a distributor for Highway Equipment Co., Cedar Rapids.

The firm will handle New Leader lime spreaders, combination lime and fertilizer spreaders, widespread lime and fertilizer spreaders and mobile blenders.

"Boy! What an expense account!"

Canadian Packers Don't Want Hogs, If No Pork Market

WINNIPEG—"The fact that there may be no market at any price for some of the hogs delivered by the farmers to the yards under the government's new plan," was probably the most significant point raised at a meeting of Canadian farm organization and meat packing company officials in Ottawa Sept. 2, George Jamieson, vice president, Manitoba Pool Elevators, reported to executive members of the Manitoba Federation of Agriculture. The meeting, called by the Agricultural Prices Stabilization Board to discuss the federal government's proposed hog deficiency payment plan, was attended by 10 representatives of the Canadian Federation of Agriculture, four from the Interprovincial Farm Union Council and seven from the Meat Packers Council.

"Representatives of the packers made it clear that they were not interested in pork at any price if there was not a market available for it," Mr. Jamieson said. "Exports to the U.S. have fallen in half in the last six months, and with the surplus of corn building up it will not be surprising to have $1 corn and 12¢ pork there in the not too far distant future.

"The level of the deficiency payment paid on eligible hogs marketed by each farmer would be the same to all farmers across Canada, regardless of the price received by the individual farmer for his hogs in the open market. This level would be based on the difference between the average of prices paid on the five major Canadian markets, calculated on an annual basis, and the support level set by the government under the act."

Regarding quota levels, Mr. Jamieson was surprised to see that the majority of the 14 farm representatives present voted for a maximum quota to any one producer of 100 hogs per year. "Certainly a quota set this low would discriminate against and actually penalize the efficient farmer who has as one of his major enterprises hog production," he stated.

He also noted that deficiency payments would be made only on A and B-1 hogs.

Farmers will be sent application forms through the mail which are to be completed and returned to Ottawa. They will then be issued a producer's number to be used in keeping record of their sales.

If this system aroused protest from the U.S. it was suggested that the government might put a countervailing tax on all sales of pork to the U.S. Mr. Jamieson noted that the benefits from such a tax would not accrue to the hog producer, but rather to the Canadian treasury.

No date for the implementation of the plan was announced, although Jan. 1 was considered a possibility.

Following discussion, Mr. Jamieson said that every attempt possible should be made to acquaint hog producers with the proposed plan so that its implications could be discussed. Also discussed by Mr. Jamieson were plans for the coming membership drive in October, the formation of commodity groups within the framework of the MFA to provide an effective voice for specialized producers, the farm leadership course planned for December in Brandon, Man., and an expanded public relations program to acquaint city dwellers with the farmer's real position in the economy.

Puritan Mills Handling 'Grass-Making' Process

ATLANTA, GA.—A process for growing grass "artificially" is being distributed by Puritan Mills, Atlanta.

The process, called "Hydroponics," involves growing oat grass entirely without soil. It is being used on the James Trammell dairy farm near Pine Mountain, Ga.

According to Howell E. O'Neal, Puritan Mills, cows produce 10-20% more milk after being fed the specially grown grass than when eating pasture grass alone. An increase of approximately 1 gal. a day per cow is expected from Mr. Trammell's herd. Housed in a 12x20 ft. building, Mr. Trammell's 40-cow unit process produces enough grass to feed each cow 10-12 lb. daily, the equivalent of one hour of pasture grazing, it was indicated.

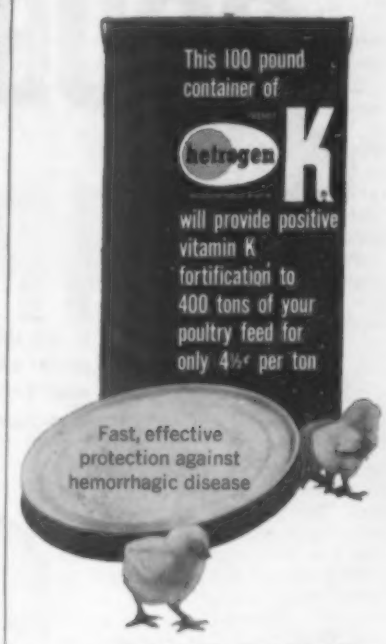
Oats are placed in a layer about 1.5 in. deep in each of the 120 trays, and are irrigated automatically twice daily. The "crop" is harvested by lifting out the 12-in. squares, grass, roots and all.

The grass-maker is being used mostly by owners of dairy operations of less than 100 head. Cost for a 40-cow unit is about $6,600, which includes construction of the building and installation of the process.

Swift Plant Explosion

FRANKFORT, IND.—An explosion recently ripped through a building of the Swift & Co. soybean processing plant here. Part of the prefabricated oil extraction building's roof was torn off, and two walls collapsed.

Authorities made no estimate of the damage, but said it was "considerable." No workers were in the building when the explosion occurred.


This 100 pound container of
hetrogen K
will provide positive vitamin K fortification to 400 tons of your poultry feed for only 4½¢ per ton
Fast, effective protection against hemorrhagic disease

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the Challenger Oat Huller

Hulled, flaked oats mean premium hogs at lower cost.

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HULLER MFG. CO.
CEDAR FALLS, IOWA
"Pioneers Progressing with the Years"

Use Feedstuffs WANT ADS for RESULTS

SHORT OF ROUGHAGE?

Turn to PAXCO DEHYDRATED CORN COB MEAL, as many feed suppliers have. Superior molasses carrier. Cattle like it, get real feeding value from it. Reliable source; stabilized prices. Write today to:

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HIGHER QUALITY HEAT TREATED HAMMERS
Hammers direct from manufacturer of years' experience. Send your specifications or worn hammer. Quantity discounts on hammers and screens. Ask for prices.
SOUTHWEST MILL SUPPLY CO.
P. O. Box 7455 N. Kansas City, Mo.

Why That Dirty Rat!

He'll steal about $20.00 a year from your profits through grain and building damage. Rid your elevator of these robbers!!!

DOUGLAS RAT-KILL with WARFARIN dry bait
DOUGLAS RAT and MOUSE KILLER with PIVALYN water soluble bait
Feed both in DOUGLAS' combination dry and water soluble BAIT STATIONS. Rid your buildings of rats and mice now with these rodent-killing Douglas products.

Grain Sanitation Division
Douglas Chemical Company
620 East 16th Avenue North Kansas City, Missouri

DOUBLE YOUR TONNAGE
TRIPLE YOUR PROFITS

Watch this area each month for a new dealer who has Doubled His Tonnage and Tripled His Profits on the Honegger Program.

DAN MILDRED
Mildred Bros. Hatchery
Warrenton, Missouri

To PROGRESSIVE FEED DEALERS

Although we've sold feed for years, the farmers in our area have had us pegged strictly as hatcherymen until we started handling Big "H" Feeds a little over a year ago.

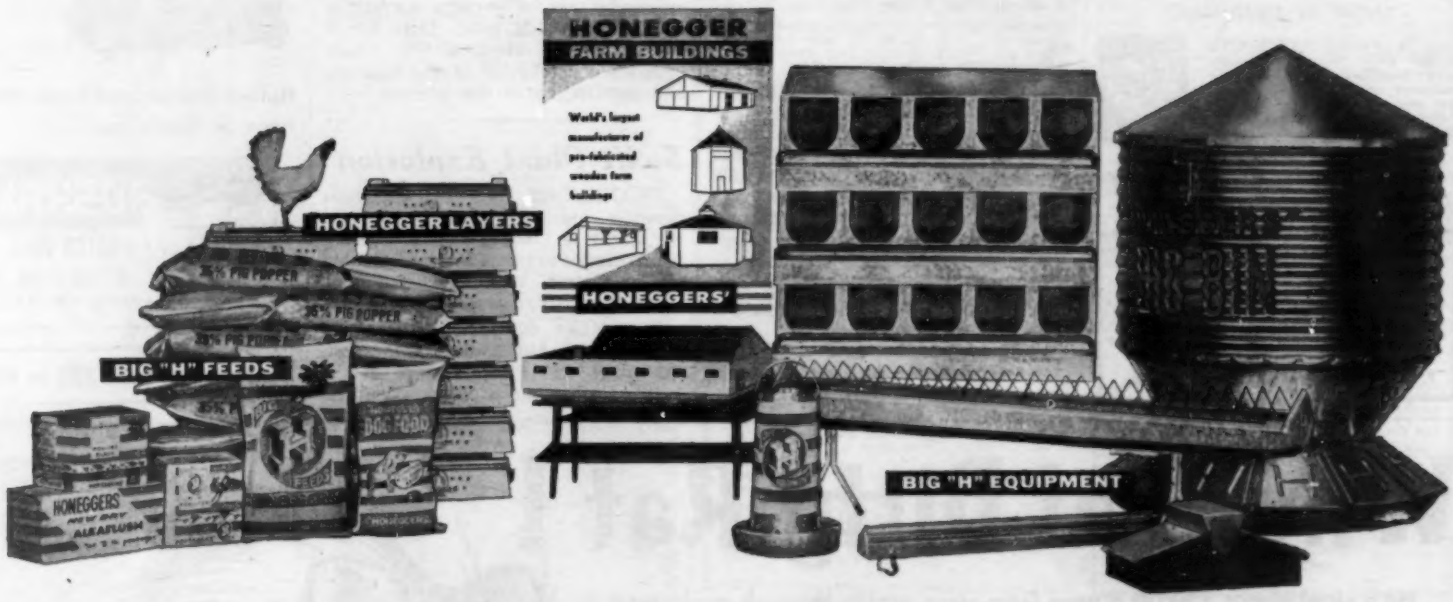
Since joining Honeggers', we're shipping our feed in carloads and have a real sales program with Prefabricated Honegger Farm Buildings . . . Big "H" Livestock and Poultry Equipment in addition to the National Champion Honegger Layer. Ours is now a 12-month-a-year business and we have not only doubled our tonnage; we've more than tripled it.

We are enthused about the Honegger Program and our customers are enthusiastic about the new products and services which our Honegger Franchise has brought to our community.

The fine service and sales help we get from Honeggers', plus a great line of quality products, has made the Honegger Franchise a real milestone in our business experience.

Dan Mildred
Mildred Bros. Hatchery
Warrenton, Missouri

What others have done....you can do also
WITH HONEGGERS' COMPLETE PROGRAM



No other feed company in America has so much to offer!

→ Write, phone or wire collect for complete details . . . *DAY or NIGHT* . . . Do it today!

HONEGGERS' & CO., INC., FAIRBURY, ILL.

PELLETING

(Continued from page 1)

dled with less production of fines.

While the feed men were told of developments which can improve their operations significantly, they also were reminded that many of the industry's plants continue to lag in relative efficiency and productivity. An indication of this is found in a pelleting cost study which showed that actual productivity of labor involved ranged from no better than 40 to 60% of what might be considered standard. This productivity level—which stems partly from the nature of the feed business itself—is lower than that found in most other industries.

As expected, there was a great deal of interest in the pelleting of roughages and complete rations for ruminants. Discussions of this subject provided additional information on this increasingly important development, but it also was apparent that, at least for many feed men, there are still a good many questions to be answered, particularly when one gets into economic and nutritional matters as they are related to production and handling.

It was shown how some persons are successfully pelleting and wafering forages and complete rations, but many others were advised that they will have to take what information and facilities are available, and then apply them in their own particular areas or circumstances if they are to get into this field successfully.

Following are brief notations on some of the research reports and discussions presented at the school. (Some further information on these and other topics, and the Small Mill Short Course will be presented later.)

Extending die life—R. L. Patterson, Procter & Gamble Co., Cincinnati, noted how surface finish of extrusion die holes is the most important factor affecting pellet production rates and die life, and then presented extensive research data indicating that improved die surface finish and subsequent gains in production rate and economically significant gains in die life can be obtained with: (1) Better abrasive polishes—two types were evaluated in pilot and production mills; (2) durable metal platings or coatings — a chemically deposited nickel plating was found effective for reclaiming poorly performing dies in pilot and production mills, and (3) improved die alloys. Others are working on this lead, and a new die of this type is currently being introduced to the market.

Conditioning pellet mash — Oak Smith, Wenger Mixer Mfg. Co., Kansas City, outlined the results of research on the gelatinization of starches in pelleting. The study involved use of a two-stage pre-conditioner ahead of the pellet mill with the effects of temperature and moisture examined. It was shown that pelleted feeds can be gelatinized to a very considerable extent. Fines were materially reduced, and pellet toughness was enhanced in some cases. Feeding tests to determine nutritional effects also are being conducted.

Pelleting cost study—A. J. Bohl, Wolf Management Engineering Co., Chicago, presented results of a pelleting cost study sponsored by Feed Production School, Inc. Because of the many variables involved in pelleting, it is not possible to provide an industry-wide cost standard, but it was shown how plants can develop cost standards which are very important to their operations on an individual mill basis. The report included cost data for various sizes of plants and types of pelleting operations which feed men can use in analyzing their own pelleting cost situation. It was this report which showed that many plants lag in efficiency and need improvements in supervision, flow, facilities and scheduling and plannnig.

Controlling fines in handling and storage—Art Stegner, Butler Mfg. Co., Kansas City, outlined the results of a study of the extent of pellet damage in various types of elevating, conveying and storage facilities, with the conveying equipment operated at different speeds. Using the test results, feed men will be able to calculate expected pellet damage in bulk handling. This involves use also of a tumbling abrasion test shown by Mr. Stegner.

Effects of pelleting on micro-ingredients—Robert C. Wornick, Chas. Pfizer & Co., Inc., Terre Haute, Ind., presented an extensive compilation of data on what happens to micro-ingredients in pelleting. It was indicated that initial potency losses of micro-ingredients as a result of the pelleting operation are negligible or seldom significant, but losses in pelleted feeds during storage usually are greater than in mash. Prompt feeding of pelleted rations is most desirable, and overages in micro-ingredients should be provided to offset any losses anticipated during storage periods.

Getting tougher pellets—In a second research project report, Oak Smith told of studies on the effect of die speeds on pellet mill capacity, percentage of fines and pellet toughness for various types of feeds. He showed how tougher pellets can be produced at the optimum rates for the various feeds, and he showed a device which can be used to determine pellet toughness. He urged development of a standardized pellet toughness rating for the industry.

Bulk versus bag feed handling—Another research project dealt with bulk versus bag feed handling. It was conducted for the research committee of the textile bag industry by Container Laboratories, Inc., Chicago, and Charles Zusi, consultant. Mr. Zusi said the survey figures do not give standard costs, but can be used by those examining bag and bulk feed handling, and considering the installation of bulk delivery equipment or extension of bulk equipment.

Pelleted rations for ruminants—H. E. Prescott, Aero-Bulk Mfg. Co., Kansas City, covered many of the problems involved in production of high-roughage pellets, and he pointed out routes to follow to take care of some of these problems.

Complete pellets for poultry and swine—Phillip Wake, J. H. Wake Feed Mill, Oskaloosa, Iowa, described his plant and methods in producing complete high-grain pellets. He mentioned such things as the importance of fineness of grind and steam requirements. Also, he noted that he uses some type of liquids in most of these rations.

Pelleting dairy feeds — Robert Stroup, Sprout, Waldron & Co., Inc., Muncy, Pa., presented information on the use and manufacture of complete pelleted dairy grain rations (not including roughage). He said the feed manufacturer should be prepared to gear up his production to meet the new demand and to open new markets in this field.

Research engineer's view of roughage pelleting and wafering — Prof. John B. Dobie, agricultural engineer at the University of California, described developments in pelleting and wafering, and noted that pellets made on conventional pellet mills from finely-ground hay are increasing in use. He also cited developments in wafering. And he predicted that field machines for making hay pellets or wafers may be commercially available in 2-3 years. Currently, however, he suggested use of stationary plants. Discussions of the subject indicated a good many questions about the economic and nutritional aspects, as well as mechanics.

Producing molasses pellets on a hard pellet mill—Will Brooks, Illinois Farm Supply Co., Springfield, Ill., described his firm's unusual system for producing pellets with up to about 30% molasses on a hard pellet mill. He commented, "A number of people say we can't do this, but we do, and you can." In this system the steam goes into the molasses line ahead of the conditioning chamber. The meal is pre-heated in the winter.

More efficient crumblizing — Robert Bartikoski, Nutrena Mills, Inc., Minneapolis, provided suggestions on crumblizing facilities and procedures, and he also suggested that someone may someday come up with a process for making crumbles without first pelleting the feed.

Production labor — Dr. V. John Brensike, U.S. Department of Agriculture, reviewed results of a previously reported study on labor costs in formula feed milling, showing how volume affects unit costs. He also noted that a new study will show a complete analysis for pelleting costs, covering labor and equipment.

Pelleting problem ingredients—C. N. Hultberg, California Pellet Mill Co., Crawfordsville, Ind., provided suggestions on ways to improve results in pelleting feeds containing such materials as milk by-products, sugar, urea and certain minerals. He covered such things as temperature, type of die and die speed.

Production is affected by formulation—Otis Joyner, Dr. Charles Lewis and C. E. Swick of Kent Feeds, Inc., Muscatine, Iowa, representing management, nutrition and production, combined some hilarity with presentation of suggestions to show the need for expanded numbers of feeds and special orders, and also the need for cooperation among all departments to meet the problems involved in the best possibie ways.

The 1959 school was not even over before planning had begun for the 1960 production school. Max Cooley of Hoffman-Taff, Springfield, Mo., is chairman of the 1960 school, which will have grinding and mixing as its theme.

PURINA

(Continued from page 1)

facture a full line of Purina Chows. Both have a capacity of about 100,000 tons of feed a year and will employ approximately 50 persons.

The Ottumwa mill is the company's fourth in Iowa. Others are located at Davenport, Iowa Falls and Sioux City.

Among the Purina people introduced from the Ottumwa platform were Donald Danforth, Sr., chairman of the board; John Renth, manager of the plant; Donald Danforth, Jr., assistant manager, and Tom Henkle, superintendent.

Plan to Rebuild Mill At Vermillion, S.D.

VERMILLION, S.D.—Plans are being made for rebuilding the feed mill of Bartlett & Co. here, which was destroyed Sept. 12 in a fire which also burned the Bartlett elevator and adjacent buildings of the Farmers Elevator Co. Losses in the blaze were estimated at over $500,000.

Don Peterson and Carl Reed, comanagers of Bartlett & Co. operations at Vermillion, announced that temporary steel bins will be erected and that arrangements have been made with other feed mills to manufacture feed to meet the Bartlett sales commitments.

The Bartlett firm recently installed considerable new equipment in the plant, which serves feed distributors throughout a wide area of eastern South Dakota. The mill produced more than $1 million in formula feeds last year.

Rebuilding of the feed mill will start as soon as possible, company officials said. The Farmers Elevator Co. also plans to rebuild.

ELEVATOR FIRE

PORTLAND—A recent fire caused an estimated $6,000 damage to the Portland (Oregon) Grain Elevator recently.

TOP OF THE HOPPER

(Continued from page 2)

found in a survey report of the American National Cattlemen's Assn. According to preliminary returns, the association says, 59% of the ranchers plan to keep their breeding herds normal, and many are planning heavy culling of aged cows and replacing them with heifers. Another 17% plan to cut their breeding herds, many of them more than usual. About a fourth of the cattlemen plan expansion, with the largest increases indicated in the Southwest.

The bulletin comments: "So, if intentions are followed, more cows may be heading for market, and the national build-up may be slower than feared."

THE NATIONAL DOG WEEK ASSN. tells us that there are over 25 million dogs in the U.S. and they are increasing at the rate of 800,000 a year. Another source, quoted in This Week Magazine, says there are now more cats than dogs in the U.S. All of them eat, of course, some more than just a little.

Some interesting comment on eating routines of the sharp-claw set was passed along by the American Can Co. According to a survey it conducted in California a "surprisingly varied feeding pattern" exists for cats. The average cat reported on in the survey was served 733 meals each year. On 70% of these occasions he was fed his normal diet, but for the remainder of his meals he was fed specially-purchased supplementary foods. This finding suggests, according to the report, that there is a substantial market for commercially-prepared supplementary foods as well as the complete diet preparations. Commercial packers have concentrated up to now mostly on foods formulated to the cat's total dietary needs.

Most cat-lovers want to take as good care of their animals as the dog-fanciers do. There are probably good reasons why dry cat foods aren't as common as dry dog foods (are there any?), but some feed manufacturers might nevertheless derive some benefit from the can company's survey findings.

ALTHOUGH TOTAL FOOD CONSUMPTION per person may not increase, the number of mouths to feed continues to show some mighty rapid increases. In this period of agricultural surpluses, the population growth may not be of immediate solace, but it is encouraging for the food and feed industries over the longer pull.

The experts now figure that the U.S. population may hit 244 million by 1975. That represents an increase of 40%. Our nation is growing faster than predictions, even the recent ones, indicated. The Bureau of the Census has just revised its 1955 estimates upward by about 16 million. It will take a lot of meat, milk and eggs to feed these millions.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

A AND D FEEDING OIL

Denver: Demand fair; trend steady; supply ample; 2,250 A, 300 D 22¢ lb., f.o.b. Denver.

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, l.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

Boston: Demand and supply steady; 600 D, 1,500 A 17½¢ lb.; 400 D, 3,000 A 20¢; 300 D, 3,000 A 19½¢; 300 D, 2,250 A 18¢; 300 D, 1,500 A 16½¢; 300 D, 750 A 14¾¢; 73 D, 750 A 14½¢.

New York: Demand and supply good; trend firm; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 15½@17¢, 2,250 A 17½@20¢, 3,000 A 19@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢; f.o.b. Massachusetts, New York or Pennsylvania.

Minneapolis: Demand fair; supply ample; 10,000 A 34½¢ lb.; 300 D, 2,250 A 19¢ lb.; 300 D, 1,500 A 17½¢ lb.; 300 D, 750 A 16¢ lb.

ALFALFA MEAL

Chicago: Demand better; trend higher; supply ample; carlots, 17% protein dehydrated, with 100,000 units vitamin A guaranteed $53.50.

St. Louis: Demand fair; trend firm; supply limited; suncured, 13% fine $45; dehydrated 17%, 100,000 A, demand fair, trend steady, supply ample $52.

Denver: Demand good; trend strong; supply ample; dehydrated $48, Denver.

Omaha: Demand good; trend strong; supply tight; 17% dehydrated, 100,000 A units, bulk pellets $42; sacked meal $47, Omaha basis.

Ft. Worth: Demand fair; supply adequate; dehydrated, 17%, 100,000 A $57.80 rail, $56 truck; suncured, 13%, ¼-in. grind No. 1 $43 truck.

Boston: Demand slow; supply plentiful; dehydrated, 17% $58; suncured, 13% $46.50.

Philadelphia: Demand and supply fair; 17% dehydrated $62.50.

Portland: Demand steady; supply ample; trend unchanged; suncured, 15% $42; dehydrated $64.40.

Cincinnati: Demand poor; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $59.50@60.50.

Memphis: Demand fair; trend steady; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $52.

New Orleans: Demand steady; trend firm; supply adequate; vitamin A, 17% $58@59; pellets $53@54.

Minneapolis: Demand good; supply adequate; trend strengthened late in week, building up to $2 ton increase; 17% dehydrated, 100,000 units vitamin A, reground pellets $50, bulk, Minneapolis; oiled reground pellets $52 bulk, sacks $4 more.

Los Angeles: Demand fair; trend unchanged; supply limited; dehydrated meal, 17% protein, 100,000 A $51@52, bulk; dehydrated pellet meal, 17% protein, 100,000 A $53@54, bulk; suncured meal, 15% protein $45@46, bulk; suncured crumbles, 15% protein $47@48, bulk.

Kansas City: Demand fair; stronger undertone as production season comes closer to end, some prices have advanced to break the steady trend of many weeks; supply adequate for demand but some reports that drouth, insects and cool weather will reduce amount of hay available for final cuttings; dehydrated alfalfa meal with 17% protein and 100,000 units vitamin A guaranteed on arrival: reground pellets $47@49 sacked, pellets $42@44 bulk; dehydrated alfalfa with 18% protein and 125,000 units A $4 higher; dehydrated alfalfa with 20% protein and 150,000 units A $10 over 17% 100,000 A; suncured alfalfa meal demand is fair with supplies light, No. 1 fine $40.50 @41.50, No. 1 ¼-in. $39@39.50, No. 2 ¼-in. $37, nominal, sacked.

Buffalo: Demand poor; trend steady to lower; supply fair; $62, Boston.

Seattle: Demand fair; trend steady; supply good; 15% protein suncured $45, delivered, truck loads; 136,000 A unit dehydrated $68, delivered, truck loads.

ANIMAL FATS (STABILIZED)

San Francisco: Demand fair; supply ample; bleachable fancy 6¾¢ lb.; yellow grease 5¼¢ lb.

New Orleans: Demand fair; trend steady; supply adequate; 6@6½¢ lb., tank cars.

Ft. Worth: Demand good; supply moderate; prime tallow, tank cars 6¢ lb.; drums 8½¢ lb.; f.o.b. north Texas packing plants with returnable drums.

Ogden: Supply scarce; nominal; 6¢ lb.

Chicago: Demand fair; supply adequate; trend steady; tank truck or carlots, bleachable fancy tallow $6.75 cwt., yellow grease $6.37½ cwt.

Louisville: Demand slow; trend steady; supply good; bleachable white 6¢ lb.; white tallow 6½¢ lb.; yellow grease 5¾¢ lb.

Boston: Demand and supply steady; tallow 6¾¢ lb.; yellow grease 5¼¢ lb.

Kansas City: Demand slow; trend steady; supply ample; 6¢ lb., tank car.

St. Paul: Demand very good; supply ample; trend firm; bleachable fancy tallow 6¾¢ lb., f.o.b. producer's plant.

BARLEY FEED

Milwaukee: Demand good; supply fair; needles 90¢@$1.02 cwt.; ground screenings $25.

Ogden: Supply normal; rolled $46@51; whole barley $38@43.

Denver: Demand and trend steady; supply adequate; rolled $1.90 cwt.

Baltimore: Demand improved; supply fair; trend steady; $45.50, carlots.

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

Chicago: Demand improved; trend steady; supply ample; $35, carlots.

Boston: Demand slow; supply good; $41.

San Francisco: Demand fair; supply ample; rolled $56.50; ground $55.50.

Portland: Demand good; supply ample; trend unchanged; rolled $56; ground $54.

Philadelphia: Demand slow; supply fair; $46.

New Orleans: Demand slow; trend unchanged; supply ample; $52@53.

Los Angeles: Demand slow; trend steady; supply ample; standard rolled $3 cwt.; standard ground $3 cwt.

Seattle: Demand and supply good; trend firm; $47, bulk, truck loads.

BENTONITE (SODIUM)

Denver: Demand fair; trend good; supply ample; $21.

Chicago: Demand fair; trend steady; supply ample; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S. D., minimum 30-ton carlots, 80 granular $13.50 net; 200 mesh, fine $13.25 net.

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 80 granular $31.50; 200 mesh fine $31.

BLOOD FLOUR

Louisville: Demand slow; trend steady; supply good; $80@85.

BLOOD MEAL

Omaha: Demand good; trend strong; supply short; $105, Omaha basis.

Chicago: Demand fair; trend steady; supply adequate; carlots, 100-lb. bags, guaranteed 80% protein $120.

Louisville: Demand dull; trend steady; supply good; $80@85.

Ogden: Supply scarce, nominal; $92.50 ton in 100-lb. bags, f.o.b. Ogden.

Portland: Demand steady; supply ample; trend unchanged; $115.

San Francisco: Demand fair; supply ample; $4 a unit of ammonia.

New Orleans: Demand slow; trend unchanged; supply normal; $80@85.

Los Angeles: Demand good; trend steady; supply adequate; $5.50 a unit of ammonia.

BONE MEAL (STEAMED)

Chicago: Demand good; trend steady; supply fair; $97.50, carlots, 100-lb. bags.

Denver: Demand fair; trend firm; supply ample; $105.70, Denver.

Louisville: Demand dull; trend steady; supply light; $80@85.

Ft. Worth: Demand good; supply moderate; $90, f.o.b. Ft. Worth, local manufacture.

Boston: Demand and supply steady; $100.

Cincinnati: Demand good; supply fair; trend strong; $105, Cincinnati.

Portland: Demand steady; supply ample; trend unchanged; $102.

San Francisco: Demand good; supply ample; $75.

New Orleans: Demand fair; trend easy; supply ample; $80@85.

Buffalo: Demand good; trend steady; supply limited; $105.

Los Angeles: Demand slow; trend unchanged; supply adequate; imported $78 in 20-ton lots.

Seattle: Demand good; trend firm; supply limited; $90, delivered, truck lots.

BREWERS DRIED GRAINS

Louisville: Demand fair; trend stronger; supply good; $47.

Chicago: Demand and supply fair; trend steady; 26% protein $42.50, carlots.

St. Louis: Demand and supply good; trend steady; $42.

Milwaukee: Demand good; supply fair; $43.

Ft. Worth: Demand slow; supply sufficient; 26% protein $50@51, September-October, delivered Ft. Worth.

Boston: Demand steady; supply adequate; 26% $51, 22% $50.

Cincinnati: Demand poor; trend steady; supply adequate; $47.

San Francisco: Demand fair; supply ample; $54.

Philadelphia: Demand and supply fair; $51.50.

New Orleans: Demand fair; trend easy; supply ample; $60@65.

Los Angeles: Demand slow; trend unchanged; supply adequate; $49.50 bulk, $53.50 sacked.

Buffalo: Demand and supply fair; trend steady; $41.50, bulk, Boston.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

BREWERS DRIED YEAST

Milwaukee: Demand fair; trend steady; supply adequate; 10@11¢ lb., carlots; 10½@12¼¢ lb., l.c.l.

Chicago: Demand fair; trend steady; supply ample; 9½@10½¢ lb., carlots; 9¾@12¼¢ lb., l.c.l.

Louisville: Demand fair; trend steady; supply good; 10@10½¢ lb.

St. Louis: Demand fair; trend steady; supply adequate; 9½@10¢ lb., carlots; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

Denver: Demand light; trend steady; supply ample; 8¢ lb., f.o.b. Golden, Colo.

Omaha: 10½¢ lb.

Boston: Demand and supply steady; 11¢ lb.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Portland: Demand good; supply ample; trend unchanged; 8½¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb.

Buffalo: Demand good; trend steady; supply limited; $9.65 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; 10¢ lb. in 5-ton lots; 11¢ lb. in 1-ton lots; 12¢ lb. in less than ton lots.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

BUTTERMILK-CONDENSED

Ogden: Supply average; $4.40, 100-lb. drum.

Chicago: Demand fair; trend steady; supply ample; $3.25@3.50 cwt., carlots.

Louisville: Demand near zero; trend steady; supply very light; $4.25 cwt., nominal.

Boston: Demand slow; supply tight; 3¾¢ lb.

Philadelphia: Demand and supply fair; $4.25 cwt.

San Francisco: Demand fair; supply good; $5 cwt.

New Orleans: Demand slow; trend unchanged; supply adequate; $4.25@4.30 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; 5½¢ lb. in 100-lb. lots; 4½¢ lb. in 500-lb. lots.

CALCITE CRYSTALS AND FLOUR
(All prices net, including freight)

New York: Crystals $15.28, flour $10.28.
Buffalo: Crystals $16.11, flour $11.11.
Toledo: Crystals $17.96, flour $12.96.
Boston: Crystals $16.53, flour $11.63.
Limecrest, N.J.: Crystals $10.50, flour $5.50.

CALCIUM CARBONATE

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100-lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; flour $10.15 in 20-ton lots; meal $11.15 in 20-ton lots.

Minneapolis: Fine grind, 50-lb. bags $12.25, 100-lb. bags $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

CHARCOAL

Chicago: Demand good; trend steady; supply fair; 50-lb. multiwalls $110, carlot.

Boston: Demand and supply steady; $110.

San Francisco: Demand steady; supply ample; $141.

Los Angeles: Demand slow; trend unchanged; supply ample; hardwood poultry: $156, less than ton lots; $144.40, ton lots.

COCONUT OIL MEAL

Portland: Demand good; supply ample; trend unchanged; $71.

San Francisco: Demand good; supply tight; solvent $69.

Los Angeles: Demand slow; trend steady; supply adequate; copra cake $75, bulk.

Seattle: Demand fair; trend firm; supply ample; $82, delivered, via truck (California).

COD LIVER OIL (FORTIFIED)

Boston: Demand and supply steady; 600 D, 2,250 A 19¢ lb.; 600 D, 1,500 A 18¢; 300 D, 3,000 A 20½¢; 300 D, 2,250 A 18½¢; 300 D, 1,500 A 17¢.

New York: Demand and supply good; trend firm; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 18½@20¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 500 ICU, 1,500 A 17½@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

New Orleans: Demand light; trend easy; supply normal; $65@70, f.o.b. Gulf.

Denver: Demand fair; trend steady; supply ample; dried $167, Denver.

Boston: Demand and supply good; 4½¢ lb.

Los Angeles: Demand slow; trend unchanged; supply adequate; 4¢ lb.

New York: Demand poor; trend lower; supply tight; 2¾@3¢ lb., f.o.b. eastern shore.

CORN GLUTEN FEED AND MEAL
(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $44.90, meal $62.90.
Atlanta: Feed $50.98, meal $68.98.
Birmingham: Feed $49.64, meal $67.64.
Boston: Feed $49.84, meal $67.84.
Chicago: Feed $38, meal $56.
Cleveland: Feed $46.14, meal $64.14.
Denver: Feed $48.51, meal $66.51.
Ft. Worth: Feed $46.96, meal $64.96.
Indianapolis: Feed $43.36, meal $61.36.
Kansas City: Feed $38, meal $56.
Louisville: Feed $45.21, meal $63.21.
New Orleans: Feed $48.20, meal $66.20.
New York: Feed $50.43, meal $67.43.
Norfolk: Feed $48.71, meal $66.71.
Philadelphia: Feed $49.02, meal $67.02.
Pittsburgh: Feed $46.96, meal $64.96.
St. Louis: Feed $38, meal $56.
Decatur, Ill.: Feed $31.75, meal $52.75.

CORN OIL MEAL

Cincinnati: Demand fair; trend lower; supply adequate; $44.50.

Louisville: Demand slow; trend steady; supply ample; $47.45.

Seattle: Demand fair; trend easy; supply ample; $56, bulk, carlots.

COTTONSEED OIL MEAL

New Orleans: Demand slow; supply adequate; trend steady; $68@68.50.

San Francisco: Demand good; supply tight; 41% $75; 44% $78.

Portland: Demand slow; trend lower; supply ample; $75.

Philadelphia: Demand slow; supply fair; $66.

Wichita: Demand fair; supply insufficient; 41% old process $67.

Cincinnati: Demand fair; trend steady; supply adequate; $62.

Memphis: Demand slow; trend easy; supply plentiful; prime 41% protein, old process $54.50; new process, 41% solvent $51.50.

Chicago: Demand fair; trend steady to easy; supply ample; carlots, Memphis basis, hydraulic $55, solvent $52.

Ogden: Supply average; 41% $80@85.

St. Louis: Demand slow; trend steady; supply ample; solvent $56.50.

Omaha: Demand fair; trend steady; supply ample; 41% solvent $56.70, bulk, delivered Omaha.

Denver: Demand fair; trend steady; supply ample; 2% fat $63.40, Denver.

Ft. Worth: Demand fair to good; supply sufficient; 41% old process $60; solvent 1% fat added $59.40; pellets $2 additional; cottonseed hulls $17, sacked.

Boston: Demand slow; supply ample; $74.

Los Angeles: Demand slower; trend unchanged; supply ample; $64, bulk.

Kansas City: Demand fair; trend steady; supply plentiful; solvent meal $52.50, Memphis; old process $55.

Buffalo: Demand poor; trend steady to lower; supply adequate; $74.25, Boston.

Seattle: Demand fair; trend easy; supply ample; $72, delivered, via truck (new crop, September delivery).

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL (POWDERED)

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply adequate; 1,500 ICU 9¾¢ lb.; 3,000 ICU 11½¢ lb.

New York: Demand and supply good; trend firm; price per lb. in 50- and 100-lb. bags, or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Cincinnati: 18% phosphorus $81; 13% phosphorus $64.98, f.o.b. Cincinnati.

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $69.12 net ton, f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; carlots $63.50, truck load $64.25, net ton, f.o.b. Coronet in 100-lb. multiwall bags; $60.50 and $57.50 in bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $71.50 net ton, f.o.b. Houston, 100-lb. multiwall paper bags, $68.50 in bulk.

DICALCIUM PHOSPHATE

Cincinnati: 18½% phosphorus $92@93.

Portland: Demand slow; supply ample; trend unchanged; $115.

Denver: Demand fair; trend steady; supply ample; $97.60, delivered in Denver.

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Texas City, Texas: 18.5% minimum phosphorus, 21% minimum calcium, 24% maximum, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers, $3 net ton less than bagged materials.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

DISTILLERS DRIED GRAINS

San Francisco: Demand fair; supply ample; solubles $85.

Philadelphia: Demand slow; trend unsettled; supply light; $56.

Louisville: Demand fair; trend steady; supply light; bourbon grains: light $46@47, dark $49, solubles $77.

Boston: Demand spotty; supply ample; light $57@58; dark $58@59.

Buffalo: Demand and supply fair; trend steady to lower; $50, bulk, Boston.

Seattle: Demand good; trend steady; supply limited; $68.50, delivered, truck lots.

DRIED BEET PULP

Ogden: Supply scarce, nominal; $44@48.
Denver: Demand good; trend steady; supply adequate to meet commitments; $49.23, delivered in Denver.
New Orleans: Demand fair; trend unchanged; supply adequate; $54@55.
San Francisco: Demand good; supply fair; $42.80, bulk.
Portland: Demand good; supply ample; trend unchanged; $56.40.
Milwaukee: Demand and supply good; plain $43.15; molasses $43.15.
Ft. Worth: Demand slow; supply moderate; carlots, 50-lb. papers $49.20, October - November - December, delivered Ft. Worth.
Boston: Demand very slow; supply ample; $51.
Los Angeles: Demand fair; trend steady; supply adequate; $47.80@48.60.
Buffalo: Demand fair; trend steady; supply adequate; $51, Boston.
Seattle: Demand good; trend firm; supply limited; $52, delivered, carlots.

DRIED CITRUS PULP

New Orleans: Demand fair; trend easy; supply normal; $35@40, f.o.b. Florida points.
San Francisco: Demand and supply fair; meal $49.
Boston: Demand slow; supply ample; $51.
Los Angeles: Demand and trend steady; supply not too plentiful; orange pulp $41, bulk; lemon pulp $40, bulk.
Buffalo: Demand fair; trend steady to lower; supply good; $32.50, f.o.b. Florida points.

DRIED BUTTERMILK

Milwaukee: Demand and supply fair; $10.50 cwt.
New Orleans: Demand fair; trend easy; supply good; $11@11.25 cwt.
San Francisco: Demand fair; supply ample; 11½¢ lb.
Chicago: Demand fair; trend higher; supply ample; carlots, medium acid $10.75 @10.85 cwt.; sweet cream $11@11.25 cwt.
Louisville: Demand slow; trend stronger; supply light; 11½@12¢ lb.
Ogden: Supply average; $8.50, 100-lb. bag.
Los Angeles: Demand slow; trend unchanged; supply adequate; 12¢ lb.
Minneapolis: Demand good; supply adequate; trend strong; $10.60@10.70 cwt.
Buffalo: Demand fair; trend steady; supply limited; $11.85 cwt.

DRIED SKIM MILK

Chicago: Demand fair; trend easier; supply ample; carlots $10.50@10.75 cwt.
Milwaukee: Demand and supply fair; $10.50 cwt.
New Orleans: Demand dull; trend unchanged; supply ample; $11@11.50 cwt.
San Francisco: Demand and supply fair; 13½¢ lb.
Portland: Demand good; supply ample; trend unchanged; 13¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; 10¼@10¾¢ lb.
Philadelphia: Demand and supply fair; $12.50 cwt.
Louisville: Demand dull; trend firm; supply light; 11½@12¢ lb.
Ogden: Supply average; $15.15, 100-lb. drum.
Boston: Demand good; supply tight; 12¢ lb.
Los Angeles: Demand slow; trend unchanged; supply adequate; 14¢ lb., less than ton lots; 13¾¢ lb., ton lots.
Minneapolis: Demand good; supply ample; trend steady; $10.75@11 cwt.
Buffalo: Demand fair; trend steady; supply rather limited; spray $10.65 cwt.

DRIED WHEY

Chicago: Demand fair; trend steady; supply ample; carlots $5.50@5.70 cwt., f.o.b. plant.
New Orleans: Demand good; trend easy; supply ample; $6@6.50 cwt.
Wichita: Demand light; supply ample; $6.50 cwt.
Philadelphia: Demand and supply fair; $6.50 cwt.
Portland: Demand good; supply ample; trend unchanged; $6.80 cwt.
Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.
San Francisco: Demand steady; supply good; $5.75 cwt.

Denver: Demand fair; trend steady; supply ample; $6.50 cwt.
Louisville: Demand slow; trend steady; supply normal; 6½¢ lb.
Ogden: Supply normal; $6.90, 100-lb. bag.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6, sacked, delivered Ft. Worth; $6.25 ton lots, f.o.b. warehouse, Ft. Worth.
Boston: Demand steady; supply fair; 5½¢ lb.
Los Angeles: Demand slow; trend unchanged; supply adequate; $6.10 cwt., carloads; $6.35 cwt., l.c.l.
Minneapolis: Demand fair; supply ample; trend steady; 40 mesh $5.65 cwt.; standard $5.50 cwt., producer's plant.
Kansas City: Demand fair; trend steady; supply adequate; regular or partially delactosed $5.50 cwt., producers' points.
Seattle: Demand and trend steady; supply good; $6.40 cwt., ex-warehouse, l.c.l.

FEATHER MEAL (HYDROLYZED)

Ft. Worth: Demand fair; supply moderate; 85% to 87% protein $80@82.50, f.o.b. trucks, north Texas plants.
Boston: Demand steady; supply scarce; $85, nominal.
Los Angeles: Demand slow; trend unchanged; supply adequate; $1 a unit of protein.

FISH MEAL

Chicago: Demand quiet; trend steady to easy; supply liberal; carlots, eastern menhaden $125@128, scrap $121@124; Gulf menhaden $128, scrap $124; northeastern redfish $130.
Denver: Demand fair; trend steady; supply ample; $2.15 a unit of protein, f.o.b. West Coast.
Milwaukee: Demand good; supply fair; 60% $159.50.
New Orleans: Demand fair; supply good; trend steady; menhaden, 60% $128@132, scrap $124@126, f.o.b. Gulf.
San Francisco: Demand slow; supply ample; $1.95 a unit of protein.
Portland: Demand fair; supply ample; trend unchanged; $2.05 a unit.
Cincinnati: Demand fair; trend steady; supply adequate; $160.
Omaha: Demand fair; trend improving; supply ample; 60% menhaden $140.
Louisville: Demand dull; trend steady; supply light; $145@150.
Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $176@178.
Ft. Worth: Demand good; light offerings menhaden, sufficient on Peruvian; 60% menhaden $139, prompt; 65% Peruvian $137, first half October, delivered Ft. Worth.
Boston: Demand and supply steady; $130.
Buffalo: Demand just fair; trend steady; supply ample; 60% protein menhaden $140 bulk, $145 sacked.
Minneapolis: Gulf menhaden demand good, supply adequate, trend steady $146 @147; 60% blended, demand fair, supply ample, trend off slightly to steady $149@ 154; 70% herring, demand good, supply adequate, trend firm $2 a unit, f.o.b. West Coast.
Los Angeles: Demand dull and slow; trend weaker; light offerings; local production, 60% protein $2.10 a unit.
Seattle: Demand and supply good; trend steady; $2.10 a unit protein, ex-dock (Alaskan).

HAY

Ft. Worth: Demand fair for alfalfa, practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $34@36, No. 2 $32@34; No. 2 prairie $24@26; No. 2 Johnson $22@24, delivered Texas common points.
Cincinnati: Demand poor; trend steady; supply adequate; No. 1 timothy $24; second cutting green alfalfa $30; mixed $27; wheat or oat straw $18@20.
Wichita: Demand good; supply sufficient; prairie $17.50; alfalfa $20@22.50.
Philadelphia: Demand slow; supply light; $24@25.
Portland: Demand good; supply ample; trend unchanged; $34.
Denver: Demand and trend good; supply just fair; alfalfa, baled $28@29 on new hay, third cutting.
Louisville: Demand fair; trend steady; supply good; No. 1 fancy hay, any variety $25@30, No. 2 $2@3 less; straw, any variety $20.
Ogden: Supply average; $1.25@1.35 per bale; $25 ton in the field.
Boston: Demand fair; supply improving; No. 2 timothy $41@44.
Los Angeles: Offerings light; demand fair to good; U.S. No. 1 $34@36; U.S. No. 2 leafy $32@33; U.S. No. 2 green $32@33; U.S. No. 2 $29@30.
Seattle: Demand good; trend strong; supply fair; alfalfa, U.S. No. 2 green $36, delivered, truck lots.

HOMINY FEED

Louisville: Demand dull; trend steady; supply normal; $44.50.
Chicago: Demand fair; trend easier; supply adequate; $38.50@39, carlots.
New Orleans: Demand slow; supply ample; trend steady; $44@45.
Memphis: Demand nil; trend steady; supply ample; white $41, yellow $41.
Cincinnati: Demand fair; trend lower; supply adequate; $41.50.
Milwaukee: Demand good; supply fair; $38.50, Milwaukee.
St. Louis: Demand slow; trend lower; supply ample; yellow $39.50.
Boston: Demand slow; supply plentiful; $49.
Kansas City: Demand fair; trend firm; supply adequate; yellow $32@33, bulk.
Buffalo: Demand fair; trend lower; supply good; $43.50, bulk, Boston.
Seattle: Demand fair; trend steady; supply good; $55, delivered, carlots.

LINSEED OIL MEAL

Chicago: Demand normal; trend steady to easier; supply ample; carlots, Minneapolis basis, solvent $65.50, carlots; expeller $72.50.
Louisville: Demand slow; trend stronger; supply normal; old process $90.50, up 50¢; new process $84.50, up $1.50.
Ft. Worth: Demand slow; light offerings; 34% old process $92.50, truck; solvent $86, rail.
Denver: Demand poor; trend steady; supply tight, small crop; $84.94, Denver.
New Orleans: Demand slow; supply ample; trend steady; $84.50@85.
Wichita: Demand fair; supply sufficient; 34% $89.20.
Portland: Demand slow; trend lower; supply ample; $86.
Cincinnati: Demand poor; trend steady; supply adequate; new process $83; old process $90.
Philadelphia: Demand slow; trend unsettled; supply fair; 34% $88.50.
San Francisco: Demand fair; supply ample; $77.50.
Milwaukee: Demand good; supply fair; old process $83; new process $76.
Omaha: Demand slow; trend steady; supply tight; 34% solvent $70.80, bulk; 32% old process $77.30, Omaha basis.
Boston: Demand slow; supply plentiful; $87.50.
Los Angeles: Demand slow; trend unchanged; supply adequate; local production, 20% protein $71, bulk.
Minneapolis: Demand fair; supply short; trend strong; new process $65.50@66 September, $67.50 October-December; old process $72.50 September, $74.50 October-December.
Kansas City: Demand fair; trend steady; supply adequate; solvent $65, bulk, Minneapolis; old process $72@72.50.
Seattle: Demand fair; trend steady; supply limited; 34% protein (Montana) $91, delivered, carloads.

LIVER AND GLANDULAR MEAL

Omaha: Demand good; trend good; supply short; 65% $210, Omaha basis.

MALT SPROUTS

Milwaukee: Demand good; supply fair; oddweights $35; evenweights $38.
New Orleans: Demand fair; trend steady; supply ample; $40@42.
Cincinnati: Demand fair; trend lower; supply adequate; No. 1 $41.
Chicago: Demand fair; trend steady; supply ample; carlots, No. 1, uneven bags $33.50; bulk $27.50.
Boston: Demand and supply limited; $42.50.

MEAT AND BONE MEAL

Ogden: Supply scarce, nominal due to Swift & Co. strike; $87 in 100-lb. bags.
St. Louis: Demand slow; trend lower; supply adequate; $83.
Chicago: Demand and supply fair; trend steady; carlots, 50% protein, 100-lb. bags $85.
Omaha: Demand good; trend good; supply ample; $82.50.
New Orleans: Demand slow; trend easy; supply ample; $81@86.
Portland: Demand steady; supply ample; trend unchanged $1.40 a unit.
Wichita: Demand good; supply insufficient; 50% $90, f.o.b. plant; 55%, no quotations, no offerings.
Cincinnati: Demand good; trend steady; supply fair; 50% $80, Cincinnati.
San Francisco: Demand fair; supply ample; $1.50 a unit of protein.
Denver: Demand good; trend steady; supply ample; 50% $77.50 truck lots, $75 bulk lots.
Louisville: Demand slow; trend steady; supply good; $80@85.
Ft. Worth: Demand good; trend higher; supplies tight; meat and bone, 50% $80, f.o.b. or delivered Ft. Worth.
Boston: Demand and supply steady; $1.15 a protein unit; converted 50% $70.
Kansas City: Demand good; trend steady with buyers still eying possible strike against one of big packers—strike could cause strength, settlement weakness; 50% meat and bone scraps $82.50.
Los Angeles: Demand steady; trend unchanged; supply adequate; 50% protein $1.60 a unit, bulk.
St. Paul: Demand fair; supply ample; $82@86.
Buffalo: Demand just fair; trend easier; supply ample; 50% meat scraps $75 bulk, $80 sacked.
New York: Demand and supply fair; trend steady; 50% $67.50, 55% $75, bulk; 50% $70.50, 55% $78, sacked.
Seattle: Demand good; trend easy; supply ample; 50% protein $80, ex-warehouse.

MILLFEEDS

Minneapolis: Demand good; supply adequate; trend strong; mostly up $2@3; middlings and bran $33@33.50, sacked; red dog $41@46, sacked.
Kansas City: Demand good, especially for sacked feeds; trend firm; supply adequate at this level, although sacked feeds are fairly scarce and mills are not offering for this week; bran $32.50@33.25, shorts $42@42.75, sacked; bran $28@28.75, shorts $37@37.75, middlings $31@31.75, bulk.
Wichita: Demand strong; supply limited; basis Kansas City: bran $32.25@32.75, shorts $40.50@41; bran advanced $2.50 and shorts $4.25, compared with preceding week.
Ft. Worth: Demand good; extremely limited offerings; carlots, burlaps, bran $42, gray shorts $51, bulk middlings $42, delivered Texas common points; $2 higher on bran, $4 higher on shorts and $2.40 higher on middlings compared with previous week.
Chicago: During the week ending Sept. 23, there was a rather material pickup in millfeed sales by local brokers and jobbers, but only a very modest portion of it seemed to be done with buyers in the normal Chicago area. This was particularly true of standard bran and standard midds., but did not apply to red dog, which experienced a draggy demand and prices losing ground on the lighter millfeeds. Sacked bran moved up $1, and the bulk showed independent strength in advancing as much as $2.50 ton. Middlings offerings were comparatively light and prices edged upward $2.50 in sacks and $3@3.50 ton in bulk. Red dog lost ground and quoted off 50¢@$2 on sacked and 50¢@$1 lower for bulk. Quotations, Chicago basis, ton, carlots: standard bran, sacked

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$38.50, bulk $32.50; standard midds., sacked $39, bulk $34@34.50; red dog, sacked $47.50, bulk $43.

Omaha: Demand good; trend strong; supply tight; sacked bran $33; sacked gray shorts $41; bulk standard midds. $32.50; all Omaha basis.

Cincinnati: Demand fair; trend of bran steady, middlings higher; supply adequate; bran $39; middlings $44.

St. Louis: Sacked bran $38@28.50, shorts $47.50@48; bulk bran $33@33.50, shorts $42@42.50, middlings $36@36.50.

Memphis: Demand and supply fair; trend higher; wheat bran $40.20, sacked; gray shorts $48.70, sacked; standard midds. $38.20, bulk.

Boston: Demand fairly steady; supply spotty; bran $45@45.50, middlings $48.50.

Buffalo: Millfeed sales were quiet last week. Mixers' business was off and they bought on a spot basis only. Prices advanced here in sympathy with western strength rather than to any increased demand in the East. Middlings were in a much better position than bran and scored the greatest price rise. The sacked differential on bran and middlings held steady at $7.50. Bulk and sacked bran ended $1 @2 higher; bulk and sacked middlings advanced $4.50; red dog declined $1@1.50. Quotations Sept. 23: bulk bran $30@31.50, sacked $37.56@39; bulk middlings $36@36.50, sacked $43.50@44; bulk red dog $43@43.50, sacked $48@49.50.

Philadelphia: Demand spotty; trend unsettled; supply fair; bran $45, standard midds. $48, red dog $56.

New York: Demand and supply good; trend upward; bran $42.50@43; standard midds. $46.50@47.

New Orleans: Demand fair; trend easy; supply ample; bran, sacked $43.50@44.25, bulk $38.50@39.25; shorts, sacked $51.50@52.25, bulk $45@45.75; bulk middlings $40.50@41.25.

Louisville: Demand fair; trend strong; supply ample; bran $43.60, up $2; mixed feed $47.60, up $2.50; shorts $51.30, up $2.50; middlings $44.30, up 50¢.

Denver: Demand active; trend strong; supply limited; shorts $45.25, bran $36.25, mill run $40.75.

Portland: Demand fair; supply ample; trend unchanged; $42.

Seattle: Demand fair; trend steady; supply limited; $45, delivered, common transit points, carlots.

Ogden: Supply average; to Utah and Idaho: red bran and mill run $41, middlings $46; to Denver: red bran and mill run $45, middlings $53; to California: red bran and mill run $48.50, middlings $53.50, f.o.b. San Francisco and Los Angeles.

Los Angeles: Standard mill run $45@45.50, bulk, good demand, firmer trend, light offerings; red bran $47@48, bulk, steady demand, firmer trend, ample supplies.

San Francisco: Demand good; supply tight; millfeed $48.50; red bran $49.

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MINERAL FEED

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Wichita: Demand good; supply sufficient; all-purpose with iodine, 50-lb. blocks $97.50, 100-lb. bags $92.50, f.o.b. plant.

Portland: Demand slow; supply ample; trend unchanged; $45.

Denver: Demand fair; trend steady; supply ample; $155.

Ogden: Supply nominal; $113 ton in 50-lb. blocks; $103 ton, granular, 50-lb. bag.

Ft. Worth: Demand good; supply sufficient; all-purpose granules $90, block $97; mineral phosphorus, 6% granules $106, block $113; cattle-sheep mineral, 7% phosphorus granules $100, block $107; hog mineral phosphorus, 3½% granules $87; phosphorus 2% $77 (all in 50-lb. paper bags).

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

MOLASSES

Denver: Demand fair; trend steady; supply ample; 10¢ gal., New Orleans; $17.10 ton, New Orleans; $20 ton, West Coast.

Kansas City: Demand slow; trend steady; supply ample; 10@10¼¢ gal., tank car, New Orleans, mostly 10¢.

Los Angeles: Demand good; trend steady; supply adequate; $20, bulk, f.o.b. tank cars; $20.25, bulk, f.o.b. tank trucks.

Buffalo: Demand fair; trend steady; supply adequate; 16½¢ gal., f.o.b. Albany.

New York: Demand fair; trend steady; supply good; blackstrap 16¢ gal., tank cars, tank wagons, f.o.b. New York.

Memphis: Demand fair; trend steady; supply ample; blackstrap 10¢ gal., tank car, f.o.b. New Orleans.

San Francisco: Demand and supply good; $20, f.o.b. cars, Richmond, Cal.

Minneapolis: Demand poor to fair; supply adequate; trend steady; $30.50, tank trucks, delivered.

New Orleans: Demand good; supply ample; trend steady; 10¢ gal., tank cars and trucks; 600-lb. customers' drums $7.05.

Cincinnati: Demand fair; trend steady; supply adequate; 10@10½¢ gal., New Orleans.

Louisville: Demand fair; trend easy; supply ample; 10¢ gal., carlots (tank), f.o.b. Gulf ports.

Ft. Worth: Demand slow; supply sufficient; blackstrap 11¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $25.51, seller's market price on date of shipment.

St. Louis: Demand slow; trend steady; supply ample; 10¢ gal., New Orleans.

Boston: Demand steady; supply plentiful; 16½¢ gal. in tank cars.

Seattle: Demand fair; trend easy; supply good; $20.25, f.o.b. Seattle, tank car lots or truck lots.

NIACIN

New York: Trend steady; $6 kilo, 10-kilo lots; $6.20 kilo, 5- and 2½-kilo lots; $6.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Los Angeles: Demand slow; trend unchanged; supply fair; local production, pulverized $62.

Louisville: Demand fair; trend steady; supply normal; reground $23.30; rolled $84.30; feeding $77.30; pulverized white $52.30; crimped $68.30.

Chicago: Demand fair; trend steady; supply ample; carlots, reground oat feed $15; No. 1 fine ground feeding oatmeal $79; feeding rolled oats $77@80.

Minneapolis: Demand poor; supply ample; trend steady; feeding rolled oats $80; feeding oatmeal $68.50; standard pulverized $45.50; crimped $59; reground oat feed $23.

Memphis: Demand poor; trend steady; supply ample; 3½% protein, reground oat feed $20.75.

Cincinnati: Demand poor; trend steady; supply adequate; reground oat feed $30; pulverized white oats $55.

Philadelphia: Pulverized white demand slow, fair supply $53; domestic demand slow, supply light $26; Canadian oat feed demand slow, supply light $27.

Portland: Demand slow; supply ample; trend unchanged; rolled $65, ground $62, cleaned $64.

Ft. Worth: Demand fair; supply sufficient; 10% protein oat millfeed $39.50@40.50; reground $24@25, September-October.

Boston: Demand fair; supply good; white pulverized $56; reground oat feed $25.50.

Seattle: Demand and supply fair; trend firm; $51, bulk, delivered, truck lots (new crop).

OYSTER SHELL

New Orleans: Demand and supply good; trend steady; $24@25.

Cincinnati: Demand fair; trend steady; supply adequate; $24.45.

Los Angeles: Demand slow; trend steady; supply ample; $14.80.

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Portland: Demand good; supply ample; trend unchanged; western $34; eastern $39; granite grits $28; shell flour $24.

Louisville: Demand good; trend steady; supply normal; 80-lb. paper bags $23.45; 50-lb. paper bags $23.70; 25-lb. paper bags $25.95.

Boston: Demand and supply steady; in paper $26.

Seattle: Demand and trend steady; supply good; eastern $36, delivered, carlots.

PEANUT OIL MEAL

Milwaukee: Demand and supply fair; 26% $41.50.

PEAT MOSS

Los Angeles: Demand slow; trend unchanged; supply adequate; Canadian 6.1 cu. ft. bales $3.75.

San Francisco: Demand and supply fair; $3.65 a bale.

Portland: Demand slow; supply ample; trend unchanged; $3.30 a bale.

Philadelphia: Demand and supply fair; $2.80 a bale, f.o.b. pier.

Chicago: Demand and trend steady; supply ample; standard 7½ cu. ft. bale $3.80.

Boston: Demand and supply steady; $3.15 a bale in carlots.

Seattle: Demand and supply good; trend firm; $2.80 a bale, delivered, truck lots.

POTASSIUM IODIDE, U.S.P.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures: 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.35; 100-lb. drums $1.38; 25-lb. drums $1.41, f.o.b. Cincinnati.

POULTRY BY-PRODUCTS

Los Angeles: Demand good; trend weaker; supply adequate; $1.40 a unit of protein.

Ft. Worth: Demand excellent; supply moderate; 55% protein $80@85, f.o.b. north Texas plants.

Boston: Demand fair; supply light; $42.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots in 3.36 to 16 gm./lb. mixtures, 3¢ in ton lots or more; freight prepaid or paid to destination.

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm./lb. mixtures; freight prepaid or paid to destination.

RICE BY-PRODUCTS

San Francisco: Demand good; supply ample; bran $45; polished $49.

Los Angeles: Demand slow; trend unchanged; supply very limited; California production, high fat content, bran $53.

Ft. Worth: Demand slow; offerings light; carlots, rice bran $33@34, f.o.b. south Texas rice mills; hulls $3.50, f.o.b. mills.

SCREENINGS

Buffalo: Demand and supply fair; trend steady; ground, sacked $34, New York, lake and rail; unground, bulk $28.25, New York.

Chicago: Demand fair; trend steady; supply adequate; carlots, ground grain screenings $30.50; Canadian $23.90.

Minneapolis: Little or no trading; domestic supplies down to practically nothing; no Canadian offerings; all prices nominal; Canadian $19, nearby; flax screenings, basis 15% $40; lights $4@10; mediums $11@20; heavies $21@35.

Cincinnati: Demand fair; trend steady; supply adequate; ground grain screenings $35.

Ft. Worth: Demand good; supply extremely limited; ground mixed grain $29.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SORGHUMS

Los Angeles: Demand steady; trend weaker; supply ample; milo $2.07½ cwt., bulk.

Ft. Worth: Demand good; supply sufficient; carlots, bulk, No. 2 yellow milo $1.90@1.91, delivered Texas common points.

SOYBEAN OIL MEAL

San Francisco: Demand good; supply ample; $78.

New Orleans: Demand slow; trend steady; supply ample; $60@61.

Wichita: Demand fair; supply adequate; 44% $62, 50% $69, f.o.b. Wichita.

Cincinnati: Demand poor; trend lower; supply adequate; $50, bulk, Decatur.

Philadelphia: Demand and supply fair; trend unsettled; 44% $48.50, bulk, Decatur.

Memphis: Demand slow; trend lower; supply thin; prime 44% solvent $58, f.o.b. Memphis.

Los Angeles: Demand slow; trend weaker; supply not too heavy; $70.90@71.90, bulk.

Kansas City: Demand good; trend firm; supply adequate; meal for Kansas City $49@50, bulk, Decatur; unrestricted meal $51@51.50.

Minneapolis: Demand good; supply adequate; trend strong; $3 increase over last week mostly due to wet weather holding up harvest and greatest share of new beans going into storage; $46@47, bulk, Decatur.

Portland: Demand slow; trend lower; supply ample; $45, f.o.b. Decatur.

Chicago: The local soybean oil meal market was characterized by a sagging trend during the fore part of the week but firming up by Sept. 23 to carry prices back up to near par with a week ago. Oil meal futures also recovered, with less selling pressure in the pit credited to processor brokers. During the month of August, bean crushings fell off about 2,300,000 bu. compared with July and as a result meal production for the past month fell off to 697,700 tons compared with 745,700 in July and 740,537 tons in August last year. Stocks of meal in processors' hands decreased about 20,000 tons for the month at 96,500 tons, but still were about 3,000 tons bigger than a year ago. Quotations, Decatur basis, ton, carlots: 44% protein, unrestricted $51@51.50, eastern restricted $48.50; 50% protein, unrestricted $56.50@57.50, eastern restricted $53@54.

Milwaukee: Demand good; supply fair; $51, bulk, Decatur.

Omaha: Demand fair; trend steady; supply ample; 44% $54.10, bulk, delivered Omaha.

Louisville: Demand slow; trend steady; supply normal; $61.70.

Denver: Demand just fair; trend weak; supply ample; $66.14, Denver.

St. Louis: Demand good; trend firm; supply fair; 44% $59.

Ogden: Supply average; $84@89.

Ft. Worth: Demand increasing; supply sufficient; carlots: 44% $66.40 immediate.

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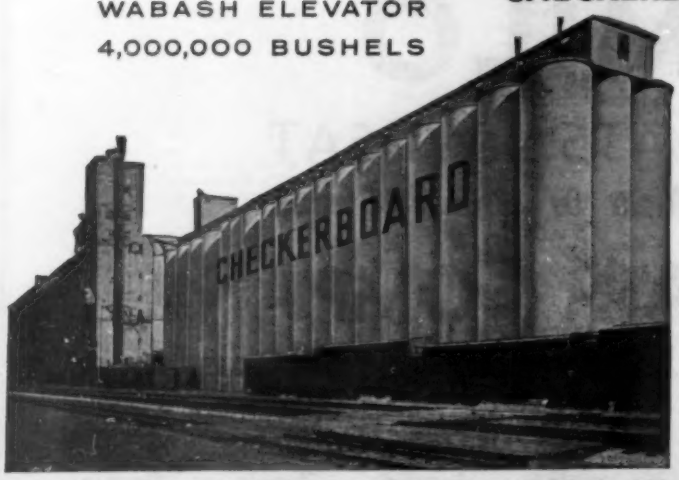

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$63 October-November-December; 50% protein $73.40 immediate, $70 October-November-December; truck: 44% $66.50, 50% $74 immediate; 44% $63@64 October-November-December.

Boston: Demand cautious; supply ample; 44% $48; 50% $52.50.

Seattle: Demand fair; trend easy; supply ample; $77, delivered, carlots.

TANKAGE

St. Louis: Demand slow; trend lower; supply adequate; $83.

Omaha: Demand good; trend good; supply ample; $82.50.

Chicago: Demand fair; trend steady; supply ample; carlots, 100-lb bags $85.

Cincinnati: Demand good; trend steady; supply ample; $82.50, Cincinnati.

Wichita: Demand good; supply sufficient; 60% $90, f.o.b. plant.

Kansas City: Demand good; trend steady, though buyers are still keeping their eyes on possible strike of one of the big packers, strike could bring strength, settlement weakness; supply adequate; 60% digester $80.

St. Paul: Demand fair; supply ample; trend steady; $84@86.

New Orleans: Demand fair; trend steady; supply light; $92@93.

Louisville: Demand fair; trend steady; supply heavy; 60% $85@90.

Ft. Worth: Demand fair; supply short; 60% digester $83, Ft. Worth.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand excellent; offerings limited for nearby shipment; 5¾¢ lb., nominal, f.o.b. north Texas area.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55; freight allowed to destination.

New York: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

New Orleans: Demand fair; trend steady; supply ample; $57@59.

Minneapolis: Demand fair to good; supply ample; trend steady; $49.

Buffalo: Demand and supply fair; trend steady to higher; commercial grade $65, f.o.b. Buffalo.

IOWA

(Continued from page 1)

that further expansion in these areas faces a number of obstacles.

In the central states, where by far most of the nation's pork is produced, the increase in production during 1958 was equal to one fourth of all production in other areas.

Among the problems faced in California and the South are heat and dust, Dr. Catron said, noting that warm climates perpetuate disease. He also commented that advantages of cheaper labor are offset by the premium placed on management talent to supervise the operations.

Other problems encountered in the new areas are greater feed costs, the fact that production there can quickly saturate local markets and that there is greater dependence on outside capital and know-how.

Feed men, Dr. Catron said, can serve customers best by recognizing the "life-cycle" approach to feeding. "Your greatest service is required during the latter stage of pregnancy and baby pig period. A smaller portion of your feed business potential lies in the growing-finishing period."

Dr. Catron briefly reviewed swine production developments in Europe, where he visited recently. He described the operations of Heinrich Biehl, Hamburg, Germany, "who thinks like an American and works like a German." Mr. Biehl has 11,000 hogs on his research farm and does one third of all the hog feed business in Germany, Dr. Catron said.

In Denmark, "short on feed and long on labor," limited feeding is practiced. Researchers there are trying to develop a method of automatically limiting feed, he said.

PELLETING OF FEED FOR CATTLE: Dr. Wise Burroughs, Iowa State ruminant nutrition researcher, presented a review and summary of 20 experiments with pelleted feeds for fattening cattle conducted at 12 experiment stations.

These experiments show that results of pelleting are not as promising on high grain rations as on high roughage rations, Dr. Burroughs said. "I am not sure the future is here today," he added.

Pelleting may improve the nutritional value of a hay ration as much as $8 ton, but it increases the nutritional value of a high-grain ration no more than $1@2 ton, he said. It is questionable, because of the costs of pelleting, whether it is worthwhile to grind and pellet fattening rations for the increase in nutritional value alone, he said.

However, other advantages of a pelleted ration should be considered he continued. Pelleted feed is easier to store and handle, it can be self-fed and also permits other labor saving techniques.

Dr. Burroughs summarized the 20 experiments in these tables:

Feed Consumption

Percentage of roughage	Control (lb.)	Advantage of pellets %	Pelleted (lb.)
100	13.9	31	18.2
74	19.8	7	21.2
50	23.3	3	23.9
20	19.3	(neg.)	17.3
	Rate of Gain		
100	.86	122	1.91
74	1.83	12	2.05
50	2.29	4	2.37
20	2.19	(neg.)	2.11
	Feed/Cwt. of Gain		
100	1416	41	953
74	1082	5	1034
50	1017	2	1008
20	881	7	820

The value of pelleting on the basis of these results was computed as follows: 100% roughage, $8.23 ton; 74%, $1.48 ton; 50%, $0.70 and 20%, $3 ton.

The reduced consumption of pelleted, high-grain feed is what causes the poorer performance, Dr. Burroughs said, and if some way could be devised to step up consumption, pelleting of these rations would be more worthwhile. He said that he suspects the studies of the chemistry of the rumen could shed some light on the matter.

DISEASE AND ITS RELATION TO NUTRITION OF LARGE ANIMALS: "A wide variety of factors that contribute to poor results existing in field conditions have no relation to rations fed," Dr. C. K. Whitehair, College of Veterinary Medicine, Michigan State University, said. Study of the relationship of disease to nutrition is complicated by the fact that knowledge of each gained under laboratory conditions cannot easily be applied to field conditions. Many problems exist in the field about which little is known, he said.

In diagnosing field problems it is important to know such things as the type of feeder involved and the types of disease organisms present at the facilities. "A good feeder is less likely to have disease problems, but this is not necessarily because he is providing proper nutrition for his animals. It would be more accurate to observe that a good feeder is also a good disease preventer."

Dr. Whitehair pointed out, for example, that incidence of foot and mouth disease increased during periods when pastures and feed supplies were plentiful. Also, it is known that incidence of viral diseases is greater when the nutritional plane is good.

Most diseases have some effect on appetite, he noted, and this aids in spotting disease problems.

On the whole, immunity to disease is greater in well-fed animals having adequate protein in their diets. The B vitamins, with the exception of thiamin, and vitamin D have been shown to contribute to immunity, he said.

Dr. Whitehair reviewed some conclusions which have been reached as a result of 10 years of experience in feeding antibiotics:

1. Feeds are a safe vehicle for administering antibiotics.
2. They are effective for treatment of infections.
3. Infectious disease is highly prevalent.
4. Nutrition and infection are interrelated.
5. Subclinical infections affect growth and feed efficiency.

It is generally agreed, he said, that the growth effect of antibiotics is a result of their action on intestinal infections, and the reason for varying responses is that different levels of disease exist in different animals.

Some troubles, Dr. Whitehair said, are caused by not providing enough nutrition for the type of production intended. He commented that much more research on the relationship of disease to nutrition is needed in the field of animal science, as well as in human medicine.

QUAKER OATS PLANT HIT BY FLOOD

ST. JOSEPH, MO.—A flash flood swept into the Quaker Oats Co. plant here Sept. 22, causing a shutdown for two days. Damage was not extensive, however, and production was resumed Sept. 24.

DISEASE AND ITS RELATION TO POULTRY: Dr. C. H. Hill, department of poultry husbandry, North Carolina State College, noted that poultry nutrition research has progressed to the point where this knowledge can be used to study disease and susceptibility to disease. He presented some preliminary findings of his research in this field.

The experiments involved checking the resistance of chicks fed different levels and combinations of vitamins to fowl typhoid and a lymphoid tumor infection.

The tests indicate, Dr. Hill said, that vitamin levels affect resistance to typhoid. In one test, in which all known vitamin needs were supplied, the survival rate of the chicks was 40%, compared with 10% for the control lot. The increased survival rate was achieved, subsequent tests showed, only when the whole combination of vitamins was fed. Removal of some of the vitamins and lowering of levels brought poorer survival, Dr. Hill reported.

Another series of experiments revealed that high levels of choline in the chick diet increased resistance to the tumor infection, he said.

Studies in which different levels of protein were checked for resistance to typhoid yielded results opposite from what the researchers had expected, Dr. Hill reported. Mortality of birds on the higher level of protein was higher. The same thing occurred when energy levels were equalized with the higher protein. Higher levels of vitamins then were tried in this series of tests, and some better resistance was obtained.

Dr. Hill said that he could not make strong recommendations concerning adding of vitamins to rations to increase disease resistance on the basis of his studies to date. He plans to pursue the research further.

COMMERCIAL EGG PRODUCTION: The market potential for Iowa eggs was closely examined by Dr. James Gwin, Ralston Purina Co., St. Louis, and Leonard Eggleton, Iowa State poultry extension specialist.

Iowa still dominates major egg markets, but changes in both production and marketing methods in other egg-producing areas pose a threat to Iowa producers which must be met squarely with positive action, the speakers said.

Dr. Gwin emphasized that to understand what is happening one must look at the market potential for Iowa eggs. It appears that quality of Iowa eggs isn't up to the requirements of the higher-priced, higher-quality markets. The portion of Iowa eggs sold in the Boston market dropped from 20% in 1954 to 7% more recently. Meanwhile, the percentage of Iowa eggs sold in the lower-priced New Orleans market moved up from 4.5% in 1945 to 46% in 1954. Iowa eggs once made up 50% of the Atlanta supply, but this percentage now is slipping as southern egg production expands.

Iowa will have to move more strongly into other egg markets if it is to maintain its position, Dr. Gwin said. Something that can help Iowa, he said, is the fact that consumers today have more confidence in all eggs. If they do not fear bad quality, they will accept a slightly lower standard and not necessarily purchase only top quality eggs.

"The 'good' egg market is vast and profitable, and I am not sure that an all-out emphasis on quality is the answer for Iowa at this time," Dr. Gwin said. He suggested that Iowa should concentrate on production efficiency, which includes recognition of the differences between commercial-sized flocks and smaller ones, and also look into the possibilities of the powdered and frozen egg markets. Iowa has advantages in feed costs and probably in labor costs, he said.

Mr. Eggleton told the feed men that Iowa hasn't realized its full egg market potential because it has been "production oriented." The producer doesn't understand his marketing problems, such as the channels by which he can get eggs to consumers at the least possible cost.

He suggested that feed men could help farmers understand the economics of direct marketing or step into marketing themselves. However, he warned them that they should not subsidize marketing costs out of feed earnings "unless you want to add further risk to an already risky business."

A study of wholesale market operations reported by Mr. Eggleton indicates that gross costs of about 17¢ doz. for processing are included in the retail price. Some of this sum can be regained by producers if they "get their confidence up to receive the true value of eggs" and develop sound marketing arrangements directly with retailers, he said.

FEEDER ATTITUDES AND ACTIONS: Attitudes of feeders toward the feed industry and feed industry developments were reported by George M. Beal and Joe M. Bohlen, both of the economic and sociology department of Iowa State. The rapid-fire flannel-board presentation also described how farmers accept new ideas.

In one survey, the sociologists found that 30% of all farmers indicated ready acceptance of formula feeds; 29% asked, "Am I feeding enough?" and 24% asked, "Can I afford it?" Another 14% asked, "Are all the ingredients in the feed that you say are included?"

Concerning new additives, 45% of the farmers questioned responded favorably, with some qualifications. Another 24% indicated they were skeptical or confused, and 10% gave negative responses.

Asked if they think feed manufacturers are interested in helping farmers make more money, 80% responded "yes." Manufacturers stretch their claims in the opinion of 10% and 10% declared that manufacturers exploit farmers.

Asked what they dislike about large feed manufacturers, 40% said there was nothing they disliked, 15% mentioned prices and profits, 10% said advertising claims were too strong, 7% mentioned vertical integration and 5% commented that the large manufacturers were squeezing out the small manufacturers.

In accepting new ideas, farmers progress through these states—awareness, information, evaluation, trial and adoption. The researchers reported that farmers get their information during the first stage, in this order, from mass media (farm papers, newspapers, radio and TV), salesmen, government agencies, neighbors and friends. In moving toward the adoption stage, the salesman becomes more important as an influence. This is particularly true in regard to feed, because it is a more complex product than many others and information is not so readily obtained from other sources, such as county agents, they said.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
July 18	1,202	607	833	825	129	908	1,591	2,055
July 25	1,212	629	690	878	108	865	1,625	2,001
August 1	1,160	614	718	797	111	845	1,550	1,898
August 8	1,163	470	673	736	130	857	1,573	2,033
August 15	1,054	485	757	791	103	815	1,742	1,782
August 22	980	420	859	767	138	805	1,607	1,967
August 29	1,048	469	714	710	100	768	1,569	1,934
September 5	1,061	427	774	604	156	724	1,326	1,871
September 12	838	352	724	633	111	627	1,419	1,718
September 19	407	402	667	622	106	557	1,179	1,871

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
July 18	1,117	565	2,930	366	6,554	160	3,363	2,292
July 25	1,272	515	2,764	354	6,298	187	3,295	2,214
August 1	1,026	484	2,576	331	6,033	144	3,177	2,132
August 8	1,116	445	2,551	348	5,807	158	3,098	2,045
August 15	1,009	528	2,660	292	5,730	177	2,973	2,169
August 22	1,060	463	2,581	272	5,370	205	3,019	2,035
August 29	1,001	486	2,396	303	5,331	170	3,034	1,780
September 5	984	467	2,405	263	4,812	213	2,906	1,664
September 12	896	386	2,355	257	4,668	234	2,568	1,618
Setptember 19	688	374	2,089	267	4,537	168	2,596	1,689

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1959	1958
July 18	3,483	367	2,157	351	207	945	33,007	33,846
July 25	3,597	423	2,142	303	237	1,017	32,626	33,378
August 1	3,358	379	2,250	287	213	913	30,996	32,440
August 8	3,287	374	2,014	335	165	959	30,337	32,003
August 15	3,077	413	2,073	340	186	878	30,034	31,232
August 22	3,024	366	2,028	292	161	888	29,307	30,025
August 29	2,869	391	1,975	277	200	800	28,325	28,883
September 5	2,769	366	1,870	317	121	839	26,939	28,117
September 12	2,657	318	1,895	282	177	852	25,585	27,265
September 19	2,648	308	1,711	244	107	726	23,963	25,781

FEED ADVERTISING

(Continued from page 6)

is more interested in selling feed than in helping feeders make money. I don't believe this myself, but I believe the industry has a public relations problem here.

Mr. Lundin: Feed advertising concepts have grown up along with the industry. Formerly, not much attention was paid to advertising efforts, and appeals were aimed at competing with grain and straight ingredient feeding.

Early advertising included strong, general claims. Later copy stressed lower costs and claimed faster gains, but often what the feed was being compared with was not stated. In some instances, "soap" techniques were applied to feed advertising. It was not to the industry's credit, but probably no great harm was done, either.

An examination of feed advertising in current farm publications shows an effort to sell confidence in complete feed and in industry research. Advertising today mostly tells what the product is, how it should be used and results that can be expected.

In the future we will have to gear our advertising to the specialized feeder, and our success will be dictated by the consumer.

Mr. McLaren: A University of Illinois study shows that 1.75% of gross income in the feed industry is spent for advertising, and of this less than ½¢ of each feed dollar is spent for mass media advertising. Money spent increases volume and efficiency, so it costs the farmer nothing.

Farmers may sometimes be confused by claims, but they benefit from reading advertising. We must convince the feeder that the feed industry wants him to make a profit. If he doesn't neither does the industry.

Most advertising mistakes are the result of enthusiasm rather than dishonesty. Misleading advertising hurts the industry more than the feeder. A proper approach might be "truth tempered with enthusiasm."

Mr. Albrecht: Farmers have confidence in advertising. They look for information and get it. In the Illinois advertising study, 61% of farm families listed farm publications as their favorite media, and 87% of them said they were better off because of advertising.

Also, 62% of them said they believed testimonials on seed corn and feed, while only 19% said they believed toothpaste and other similar product testimonials. Almost half of them rated advertisements more valuable than the editorial content of publications.

Farmers apply enough natural skepticism to discount the biggest claims. They are more likely to believe more modest claims.

It is difficult to "police" publication advertising of feeds. There often is no clear-cut decision in the biological area, as researchers will agree. Colleges can't test every product, and feeders will have to depend on the reputation of the companies involved.

Mr. Elder: We have no particular fuss with the advertising business or the feed business. A product must be good, whether selling an idea or a sack of feed.

Three major objectives of the college information service are fairness (making information available to all who can use it), accuracy (put into understandable language and try to protect the public from undue risk) and promptness. Some researchers want information to be distributed fast, and others want to sit on it. The college insists that first release of information come through official channels. Most media want a "hunting license" to search for information on the campus, and industry isn't far behind.

Competition among scientists is a problem for the college information service. Also, there is a tendency for those seeking data to pressure researchers into going further than data indicates and to take things out of context. Part of our job is to protect the integrity of the researcher.

Dr. Lewis: Research men don't want advertising to reflect anything but facts, but sometimes there is a divergence of opinion between research men and advertising men on which facts should be stressed and the proper interpretation of them. Word-of-mouth advertising is the most difficult type to combat. It can be harmful, because stories get altered as they pass through several people.

ADVERTISING PANEL—Members of a panel which discussed feed advertising and promotion at the Sept. 17 session of the Iowa College-Feed Industry Conference are shown on the platform of the Memorial Union Building. They are, left to right: Ray VanPoucke, Ames (Iowa) Reliable Products Co.; Dr. Norman Jacobson, dairy nutrition, Iowa State; Vernard Lundin, Hubbard Milling Co., Mankato, Minn.; William Sayre, Ackworth, Iowa, feeder; Richard Albrecht, Wallaces' Farmer, Des Moines; J. C. McLaren, Fairall Advertising Agency, Des Moines, and Dr. Charles Lewis, Kent Feeds, Muscatine.

E. D. Griffin Elected To Allied Mills Board; F. H. Blough Promoted

CHICAGO—E. D. Griffin has been elected to the board of directors of Allied Mills, Inc., Chicago, to succeed the late J. J. Quinlan, former board member and executive vice president. The election took place at a recent Allied Mills stockholders meeting in Chicago.

Leo T. Murphy, chairman of the board, and J. Leroy Welsh, president, Butler-Welsh Grain Co., Omaha, Neb., were reelected to the board. No other directors' terms expired at this time.

At a meeting of the board, following the stockholders meeting, F. H. Blough, assistant general production manager, was elected vice president and general production manager.

Mr. Griffin is a graduate of the University of Illinois, and was a member of the Purdue Poultry extension staff prior to going with Wayne Feeds at Ft. Wayne in 1926. After serving many years as assistant to A. G. (Chick) Philips, Mr. Griffin succeeded him as general sales manager in 1948, and was elevated to vice president in charge of sales in 1951.

Mr. Griffin is a member of the American Feed Manufacturers Assn. board of directors, serving on the executive committee, and of the AFMA sales executives committee. He is a member of the Chicago Rotary Club, Chicago Farmers Club and serves on the board of the University of Illinois Foundation, and as a director of the Illinois 4-H Club Foundation.

Mr. Blough joined the company in 1928 as an assistant in the accounting department at Ft. Wayne. He later served in accounting at East St. Louis, Omaha and Buffalo.

From 1934 to 1943, he was office manager and head of the accounting department of the Century Distilling Co., a subsidiary of Allied Mills at Peoria, Ill.

After spending time in the engineering department at Peoria, and as office manager and insurance department manager at Chicago, he served as plant manager at Omaha from 1952 to 1957, at which time he returned to Chicago as assistant general production manager.

Tax Exemption Given Planned Fish Plant

MOBILE, ALA.—A 10-year tax exemption for a proposed fish meal plant costing $100,000 at Bayou La Batre has been granted by the Mobile County Board of Revenue. The plant would be the first in this part of the country and would utilize "trash fish" now thrown away by commercial fishing companies.

Thomas L. Murphy, Jr., Van Cleave, Miss., plans to operate the mill which would have about $75,000 worth of equipment with the building costing about $25,000.

MICHIGAN

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problem of hiring good help for the brooding and growing season.

Disadvantages, said Mr. Johnson, are the introduction of disease, stresses from moving birds, and higher pullet costs.

Robert Moore, of the livestock poultry statistical branch of the U.S. Department of Agriculture, discussed the value of hatchery reports to the Crop Reporting Service. These reports, he said, are used in the compilation of USDA reports to the people on production and forecasts.

New opportunities in egg promotion were brought out by Ralph Thomas, president of the Poultry & Egg National Board, Chicago. He explained briefly the plans of the PENB for the promotion of eggs and poultry products, and predicted the new program, if supported by all industry people, from producer to manufacturer, will be able to promote research, sales and consumer desire to use hatchery products.

Epidemic tremors also came under the spotlight at the conference, as Dr. E. S. Weisner, Michigan State veterinarian, explained the Michigan experimental program for control by vaccination. It is expected, he said, that about 45,000 potential breeder birds for the 1959-60 hatching season will be vaccinated by Oct. 1.

Automatic Equipment

W. E. Sikkel, of the Big Dutchman Automatic Feeder Co., Zeeland, Mich., talked about automatic poultry equipment, and pointed out that narrow profit margins make it necessary to use automation to save high-priced labor and to handle large flocks. He listed automatic equipment advantages as greater labor efficiency, better feed conversion, less feed wastage and a conservation of time and floor space.

Fertility and hatchability in turkeys were discussed by Bruce N. Ledis, of Wirthmore Feeds, Toledo, Ohio. Factors influencing these two conditions were listed as the age of breeder birds, lighting, temperature, sex ratio, sex drive of females as well as conformation and balance of toms, preferential mating, controlled feeding and handling of hatching eggs. Artificial insemination is used, he explained, because of poor tom balance and because the use of undiluted fresh semen has been the most satisfactory method.

Other highlights included the main banquet, at which whole stuffed broilers were served to each person, along with turkey cocktail, trimmings and dessert, and the annual meetings of the Michigan Poultry & Hatchery Federation and the Michigan Turkey Improvement Assn.

At the annual meeting of the Michigan Poultry & Hatchery Federation the following men were elected to the board of directors for the coming year: President, Henry Geerlings, Zeeland; vice president, Irving Lemmen, Howell; Charles Andrus, Reese; Fred Brummer, Holland; Ed Brewer, Dundee; Al Janssen, Zeeland; Carroll Kraft, Grand Rapids; Dale Reichard, St. Louis; Dave Van Ommen, Zeeland; Dr. E. S. Weisner, state veterinarian, Lansing; Dr. H. C. Zindel, Michigan State department of poultry science, and George B. Scott, executive secretary, Lansing.

The Michigan Turkey Improvement Assn. elected the following members to the board of directors: President, Arnell VanderKolk, Holland; vice president, Lester Soules, Jackson; Jerry DeVreis, Zeeland; Harold Knoll, Holland; Dr. H. C. Zindel, Michigan State department of poultry science, and George B. Scott, executive secretary, Lansing.

The conference was sponsored jointly by the Michigan State department of poultry husbandry, College of Agriculture, the Cooperative Extension Service and the Michigan Poultry & Hatchery Federation.

MARKETS

(Continued from page 2)

cording to mill representatives. Business has recovered a little from the slump, they said, but the recovery is nothing like that experienced last year. Doubt was expressed that volume for the month would match the fine record of last September.

Running time still has not returned to the normal five day level. Most plants will operate four to four and one-half days, single shifts.

Farm shipments of hogs are seasonably large as many owners are rushing in supplies ahead of the cold fall rains. Last week's volume was nearly 75,000, the largest week's supply in over 30 months. Undoubtedly, the huge marketing is having some effect on feed demand.

But, hog feeds continue to account for a heavy proportion of the business coming in, although representatives say that dealers are expanding their orders to cover more of the general line of feeds. Apparently inventories have been depleted to a point where re-stocking is necessary even though the market has been working lower.

Ohio Valley

After a spell of colder weather last week, temperatures returned to the mid-90's this week, to provide near-ideal conditions for the corn and soybean harvesting, now actively underway in the Ohio Valley.

Manufacturers are unanimous in declaring that any substantial pickup in sales of formula feeds is not to be expected until much colder weather arrives permanently—perhaps by the middle of October. At present, the combination of sufficient pasturage and the overflow of harvested feeds offer no inducement for farmers to stock up on manufactured feeds.

Prices for jumbo eggs advanced another 4¢ doz. last week, and other sizes and grades moved up proportionately, but the only effect was to switch consumer buying from the jumbos to smaller sizes. Although supplies of fryers and other poultry items were described as "well below normal," retail prices have remained unchanged because of the limited consumer demand.

Mountain States

Feed dealers reported this week that their sales volume has increased a good deal over the previous week, and it is also up somewhat from a year ago at this time.

They say that cattle feeds are now starting to roll. Turkey feeds still are declining quite heavily due to the large stock of turkeys being dressed off. However, there is some pelleted turkey feed being sold in some sections of the state. Dairy cattle feed has also started to pick up because of dry spots in various ranges. Range and feed lots are demanding a lot of formula feed at the present time.

Most feed is being purchased hand to mouth at the present time.

Pacific Northwest

Feed ingredient quotations continued to average slightly lower during the week's limited Pacific Northwest feedstuffs market trading. Most sales were on a nearby basis.

Feed mixers at Portland and Seattle reported that further declines in cottonseed and linseed meals, milo and corn a little more than offset barley and oats price advances.

Further expansion of supplemental feeding by northwest dairymen was a reflection of cool rainy weather early in the week. Buying interest widened somewhat at most quarters.

Trade sources indicated offerings of most items continued seasonally plentiful, but a few appeared on the tight side as has been the case in recent weeks.

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The cooler weather also brought about a good increase in the sale of poultry formula feeds.

California

The general trend in California's formula feed industry is on the encouraging side, even though ingredient prices are near seasonal lows. Egg prices are steady with indications of an upward trend the next few weeks and poultry feed ratios are improving.

With range and pasture conditions poorest in 20 years and cattle population at an all time high for this time of year, grain usage by commercial cattle feeders is at a very high level. Ample to heavy inventories, however, make current feed ingredient demand slow.

Over-all feed business is up slightly from last year and up substantially from August.

RETIRED FEED MAN DIES

BEDFORD, IND.—O. L. Roberts, 77, retired partner in a group of feed and farm implement businesses in southern Indiana, died here recently.

Number of Turkeys Tested Drops 39%

WASHINGTON — The number of turkeys tested during August for pullorum disease was down 39% from the same period a year ago, but testing of chickens for supplying broiler hatching eggs was up 20%, according to a recent report by the U.S. Department of Agriculture.

The total number of turkeys tested was 129,058. Heavy white breeds tested totaled 48,948, compared with 48,640 a year ago; other heavy breeds tested totaled 59,298, down 36%, and light breed turkeys tested totaled 20,812, down 71%.

During July and August of this year, testing of heavy breed turkeys was 1% less than during the same period last year. Heavy white breeds tested were up 22% and other heavy breeds tested were down 23%. Testing of light breeds was 40% less than last year.

There were 1,918,545 chickens for supplying broiler hatching eggs tested in August, up 20% from last year. July and August testing totaled 3,455,618, compared with 3,224,921 during the same period in 1958.

August testing of chickens for supplying eggs for egg-type chicks (in states where comparisons are available) totaled 581,132, down 3% from last year. The number tested during July and August totaled 1,024,711 this year, down 7% from the same period a year ago.

Purina to Build New Feed Plant in Mexico

ST. LOUIS — The Ralston Purina Co., St. Louis, has acquired a 15-acre tract of land in Monterrey, Mexico, for the construction of a Chow mill there, it has been announced by R. Hal Dean, president of the company's international division.

Construction will start immediately. The new plant is expected to be in production by next spring. It will have the capacity to manufacture approximately 50,000 tons of Purina Chows annually.

The Monterrey plant will be the company's third Chow mill in Mexico. It also has two oilseed processing plants in that country.

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